BACHELOR OF SCIENCE (BS) DEGREE WITH A MAJOR IN EARTH SCIENCE

Program Learning Outcomes for the BS Degree with a Major in Earth Science

Upon completing the BS degree with a major in Earth Science, students will be able to:

1. Understand the structure and composition of the earth and planets, their evolution, and changing the Earth today.
2. Learn basic field geological measurements and recording.
3. Learn earth observations and recording outdoor scientific information.

Requirements for the BS Degree with a Major in Earth Science

For general university requirements, see Graduation Requirements (ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements). Students pursuing the BS degree with a major in Earth Science must complete:

- A minimum of 20-22 courses (69-73 credit hours) depending on course selection to satisfy major requirements.
- A minimum of 129-133 credit hours to satisfy degree requirements.
- A minimum of 60 credit hours outside of major requirements.
- A minimum of 8-12 courses (28-40 credit hours, depending on course selection) taken at the 300-level or above.
- The requirements for one area of specialization (see list below).

The areas of specialization for the BS degree with a major in Earth Science are:

- Geology
- Geochemistry
- Geophysics
- Environmental Earth Science
- Self-Designed

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor (or official certifier). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Earth Science</td>
<td>69-73</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BS Degree with a Major in Earth Science</td>
<td>129-133</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>Select 1 from the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 123</td>
<td>and GENERAL CHEMISTRY LABORATORY I</td>
<td></td>
</tr>
<tr>
<td>CHEM 151</td>
<td>HONORS CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 153</td>
<td>and HONORS CHEMISTRY LABORATORY I</td>
<td></td>
</tr>
<tr>
<td>Select 1 from the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 122</td>
<td>GENERAL CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 124</td>
<td>and GENERAL CHEMISTRY LABORATORY II</td>
<td></td>
</tr>
<tr>
<td>CHEM 152</td>
<td>HONORS CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 154</td>
<td>and HONORS CHEMISTRY LABORATORY II</td>
<td></td>
</tr>
<tr>
<td>Select 1 from the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHYS 101</td>
<td>MECHANICS (WITH LAB)</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 103</td>
<td>and MECHANICS DISCUSSION</td>
<td></td>
</tr>
<tr>
<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
<td></td>
</tr>
<tr>
<td>Select 1 from the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHYS 102</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 104</td>
<td>and ELECTRICITY AND MAGNETISM DISCUSSION</td>
<td></td>
</tr>
<tr>
<td>PHYS 112</td>
<td>HONORS ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
<td></td>
</tr>
<tr>
<td>Select 1 from the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>ESCI 101</td>
<td>THE EARTH</td>
<td></td>
</tr>
<tr>
<td>ESCI 115</td>
<td>INTRODUCTION TO THE EARTH</td>
<td></td>
</tr>
<tr>
<td>ESCI 321</td>
<td>EARTH SYSTEM EVOLUTION AND CYCLES</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 322</td>
<td>EARTH CHEMISTRY AND MATERIALS</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 323</td>
<td>EARTH STRUCTURE AND DEFORMATION</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 324</td>
<td>EARTH'S INTERIOR</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 334</td>
<td>GEOLOGICAL TECHNIQUES</td>
<td>3</td>
</tr>
</tbody>
</table>

Areas of Specialization

Select 1 from the following (see areas of specialization below): 24-28

Geology

Geochemistry

Geophysics

Environmental Earth Science

Self-Designed

Total Credit Hours Required for the Major in Earth Science 68-73

University Graduation Requirements (ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements) *

Total Credit Hours 128-133

Footnotes and Additional Information

* Includes coursework completed as distribution credit, FWIS, LPAP, upper-level, residency (hours taken at Rice), 60 hours outside of the major (if applicable), and any additional academic program requirements. The “hours outside of the major” requirement may include all of the above university requirements.
**Areas of Specialization**

To fulfill the remaining Earth Science major requirements, students must complete the requirements for one of the following areas of specialization.

**Area of Specialization: Geology**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 390</td>
<td>GEOLOGY FIELD CAMP (at least 3 credit hours)</td>
<td>3</td>
</tr>
<tr>
<td>COMP 110 / NSCI 230 or CAAM 210</td>
<td>COMPUTATION IN SCIENCE AND ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 412</td>
<td>ADVANCED PETROLOGY</td>
<td>3</td>
</tr>
<tr>
<td>or ESCI 430</td>
<td>TRACE-ELEMENT AND ISOTOPE GEOCHEMISTRY FOR EARTH AND ENVIRONMENTAL SCIENCE</td>
<td></td>
</tr>
</tbody>
</table>

**Elective Requirements**

**Group A**

Select 2 from the following:

- ESCI 421 PALEOCEANOGRAPHY
- ESCI 427 SEQUENCE STRATIGRAPHY
- ESCI 431 GEOMORPHOLOGY
- ESCI 435 MECHANICS OF SEDIMENT TRANSPORT
- ESCI 504 SILICICLASTIC DEPOSITIONAL SYSTEMS
- ESCI 506 CARBONATE DEPOSITIONAL SYSTEMS
- ESCI 552 MARINE GEOLOGY SYSTEMS

**Group B**

Select 2 from the following:

- ESCI 410 OPTICAL MINERALOGY AND PETROGRAPHY
- ESCI 411 ADVANCED PETROLOGY II
- ESCI 418 / CEVE 418 QUANTITATIVE HYDROGEOLOGY
- ESCI 419 MATERIALS CHARACTERIZATION
- ESCI 426 INTERPRETATION OF REGIONAL 2-D SEISMIC DATA
- ESCI 429 MAGMATIC, VOLCANIC AND HYDROTHERMAL PROCESSES
- ESCI 430 TRACE-ELEMENT AND ISOTOPE GEOCHEMISTRY FOR EARTH AND ENVIRONMENTAL SCIENCE
- ESCI 472 EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS

**Geochemistry Area of Specialization Electives**

Select 2-4 courses from the following or from any ESCI course offerings at the 300-level or above:

- BIOC 211 INTERMEDIATE EXPERIMENTAL BIOSCIENCES
- CAAM 210 INTRODUCTION TO ENGINEERING COMPUTATION
- CEVE 401 CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE LAB
- CEVE 434 / CEVE 534 FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT
- CEVE 550 ENVIRONMENTAL ORGANIC CHEMISTRY
- CHEM 211 ORGANIC CHEMISTRY I
- CHEM 212 ORGANIC CHEMISTRY II
- CHEM 213 and ORGANIC CHEMISTRY DISCUSSION
- CHEM 415 CHEMICAL KINETICS AND DYNAMICS
- CHEM 495 TRANSITION METAL CHEMISTRY
- COMP 110 / NSCI 230 COMPUTATION IN SCIENCE AND ENGINEERING
- EBIO 202 INTRODUCTORY BIOLOGY II
- MATH 212 MULTIVARIABLE CALCULUS

**Total Credit Hours**

24

**Area of Specialization: Geochemistry**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 201</td>
<td>INTRODUCTORY BIOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Requirements**

Upper-Level Electives (ESCI course offerings)

Select 4 from the following:

- ESCI 340 / EBIO 340 / ENST 340 GLOBAL BIOGEOCHEMICAL CYCLES
- ESCI 410 OPTICAL MINERALOGY AND PETROGRAPHY
- ESCI 411 ADVANCED PETROLOGY II
- ESCI 412 ADVANCED PETROLOGY
- ESCI 419 MATERIALS CHARACTERIZATION
- ESCI 421 PALEOCEANOGRAPHY
- ESCI 425 / CHEM 425 / ENST 425 ORGANIC GEOCHEMISTRY
- ESCI 426 INTERPRETATION OF REGIONAL 2-D SEISMIC DATA
- ESCI 429 MAGMATIC, VOLCANIC AND HYDROTHERMAL PROCESSES
- ESCI 430 TRACE-ELEMENT AND ISOTOPE GEOCHEMISTRY FOR EARTH AND ENVIRONMENTAL SCIENCE
- ESCI 472 EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS

**Total Credit Hours**

27

**Area of Specialization: Geophysics**

Courses chosen from the list of ESCI course offerings must be 3 credit hours or more.
**Bachelor of Science (BS) Degree with a Major in Earth Science**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 110</td>
<td>COMputation in Science and Engineering</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 230</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>or CAAM 210</td>
<td>INTRODUCTION TO ENGINEERING COMPUTATION</td>
<td></td>
</tr>
<tr>
<td>ESCI 391</td>
<td>EARTH SCIENCE FIELD EXPERIENCE (at least 3 credit hours)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</td>
<td>3</td>
</tr>
<tr>
<td>MATH 212</td>
<td>MULTIVARIABLE CALCULUS</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 201</td>
<td>WAVES, LIGHT, AND HEAT</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 231</td>
<td>ELEMENTARY PHYSICS LAB</td>
<td>1</td>
</tr>
</tbody>
</table>

### Elective Requirements

**Upper-Level Electives (ESCI course offerings)**

Select 2 from the following:

- ESCI 418 / CEVE 418 QUANTITATIVE HYDROGEOLOGY
- ESCI 426 INTERPRETATION OF REGIONAL 2-D SEISMIC DATA
- ESCI 440 GEOPHYSICAL DATA ANALYSIS: DIGITAL SIGNAL PROCESSING
- ESCI 441 GEOPHYSICAL DATA ANALYSIS: INVERSE METHODS
- ESCI 442 EXPLORATION GEOPHYSICS
- ESCI 450 / CEVE 450 REMOTE SENSING
- ESCI 452 GIS FOR SCIENTISTS AND ENGINEERS
- ESCI 461 SEISMOLOGY I
- ESCI 462 TECTONOPHYSICS
- ESCI 463 STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS
- ESCI 464 GLOBAL TECTONICS
- ESCI 467 GEOMECHANICS
- ESCI 472 EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS
- ESCI 542 SEISMOLOGY II
- ESCI 564 SEISMIC REFLECTION DATA PROCESS

**Geophysics Area of Specialization Electives**

Select 2 from the following:

- Any course from ESCI course offerings between ESCI 410 and ESCI 475, except for research and special studies
- Any course from MATH, CAAM, or PHYS course offerings at the 300-level or above
- CHEM 311 PHYSICAL CHEMISTRY I

Total Credit Hours: 28

### Area of Specialization: Environmental Earth Science

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 201</td>
<td>INTRODUCTORY BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>COMP 110</td>
<td>COMputation in Science and Engineering</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 230</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>or CAAM 210</td>
<td>INTRODUCTION TO ENGINEERING COMPUTATION</td>
<td></td>
</tr>
<tr>
<td>ESCI 391</td>
<td>EARTH SCIENCE FIELD EXPERIENCE (at least 3 credit hours)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</td>
<td>3</td>
</tr>
<tr>
<td>STAT 280</td>
<td>ELEMENTARY APPLIED STATISTICS</td>
<td>4</td>
</tr>
</tbody>
</table>

**Elective Requirements**

Select 3-4 from the following with at least 2 courses (6 credit hours) taken from ESCI course offerings:

- CEVE 401 CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE LAB
- CEVE 406 / ENST 406 INTRODUCTION TO ENVIRONMENTAL LAW
- CEVE 412 HYDROLOGY AND WATER RESOURCES ENGINEERING
- CEVE 434 FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT
- CHEM 211 ORGANIC CHEMISTRY I
- CHEM 213 and ORGANIC CHEMISTRY DISCUSSION
- EBIO 202 INTRODUCTORY BIOLOGY II
- ESCI 340 / EBIO 340 / ENST 340 GLOBAL BIOGEOCHEMICAL CYCLES
- ESCI 410 OPTICAL MINERALOGY AND PETROGRAPHY
- ESCI 418 QUANTITATIVE HYDROGEOLOGY
- ESCI 419 MATERIALS CHARACTERIZATION
- ESCI 421 PALEOCEANOGRAPHY
- ESCI 425 / CHEM 425 / ENST 425 ORGANIC GEOCHEMISTRY
- ESCI 426 INTERPRETATION OF REGIONAL 2-D SEISMIC DATA
- ESCI 429 MAGMATIC, VOLCANIC AND HYDROTHERMAL PROCESSES
- ESCI 431 GEOMORPHOLOGY
- ESCI 435 MECHANICS OF SEDIMENT TRANSPORT
- ESCI 442 EXPLORATION GEOPHYSICS
- ESCI 452 GIS FOR SCIENTISTS AND ENGINEERS
- ESCI 463 STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS
- ESCI 467 GEOMECHANICS
- ESCI 472 EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS
- ESCI 474 EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS
- ESCI 504 SILICICLASTIC DEPOSITIONAL SYSTEMS
- ESCI 506 CARBONATE DEPOSITIONAL SYSTEMS
- ESCI 540 EARTH'S ATMOSPHERE
- ESCI 552 MARINE GEOLOGY SYSTEMS
- PHYS 201 WAVES, LIGHT, AND HEAT
- PHYS 231 ELEMENTARY PHYSICS LAB

Total Credit Hours: 27

### Area of Specialization: Self-Designed

The department recognizes the interdisciplinary nature of modern earth science and the opportunity for students to specialize in nontraditional and emerging fields. Therefore, students can design their own specialty track, normally in close consultation with one faculty member and
followed by approval from the department’s undergraduate advisor. In addition to required earth science courses and related courses, these tracks will generally comprise 18 additional hours that target a coherent theme from an approved list of 300- or higher-level courses, from inside or outside the department. Interested students are expected to submit a statement of rationale by the beginning of their third year.

### Opportunities for the BS Degree with a Major in Earth Science

#### Undergraduate Independent Research

The department encourages, but does not require, Earth Science undergraduate majors to pursue independent supervised research in ESCI 481. This can also be carried out as part of the Earth Science Honors Thesis Program.

#### Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (ga.rice.edu/undergraduate-students/honors-distinctions/university) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (ga.rice.edu/undergraduate-students/honors-distinctions/university). Some departments have department-specific Honors awards or designations.

#### Honors Research

Undergraduates are encouraged to embark on an undergraduate honors thesis. The purpose of the honors thesis is for students to develop and demonstrate their creative and independent research potential. Students are recommended to begin in the fall of their junior year to provide ample time for research projects to be developed, executed and written. Students are expected to enroll in at least two semesters of the course ESCI 481, spanning their senior year. Juniors who have identified a research project and mentor can also enroll in ESCI 481. Students should sign up for ESCI 481 for 3 credits.

#### Criteria for Participating in Undergraduate Honors Thesis Research

- Strong performance in ESCI courses, in particular, ESCI 321, ESCI 322, ESCI 323, ESCI 324, and ESCI 334
- A grade of A- or better in ESCI 481
- Letter of recommendation of a faculty research mentor
- Research proposal

#### Requirements for Completing an Undergraduate Honors Thesis

Spring Semester of Junior Year

Each honors thesis candidate should choose a research topic, identify a faculty research advisor, and initiate independent research. The student should select a thesis committee, consisting of a faculty advisor, one member of the honors thesis committee, and one other faculty member of their choosing. Candidates are expected to turn in a preliminary written proposal (2 pages) at the end of their spring semester, accompanied by a formal application, both of which will be evaluated by the honors thesis committee for consideration of acceptance into the honors thesis program in their senior year. Required courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 401</td>
<td>SEMINAR: UNDERGRADUATE HONORS THESIS</td>
<td>1</td>
</tr>
<tr>
<td>ESCI 403</td>
<td>SEMINAR: DEPARTMENT RESEARCH</td>
<td>1</td>
</tr>
</tbody>
</table>

And if they have research project and mentor identified, they can also take:

### Policies for the BS Degree with a Major in Earth Science

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (ga.rice.edu/undergraduate-students/academic-policies-procedures/transfer-credit). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: http://oaad.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines

Students pursuing the major in Earth Science should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

For additional information, please see the Earth Science major page, on the Department of Earth, Environmental, and Planetary Sciences website: http://earthscience.rice.edu/academics/undergraduate-program/

### Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 391</td>
<td>EARTH SCIENCE FIELD EXPERIENCE (at least 3 credit hours)</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Self-Designed Electives

Select 2 from the following:

- BIOC 201 INTRODUCTORY BIOLOGY
- CAAM 210 INTRODUCTION TO ENGINEERING COMPUTATION
- CHEM 311 PHYSICAL CHEMISTRY I
- CHEM 312 PHYSICAL CHEMISTRY II
- COMP 110 / NSCI 230 ENGINEERING
- MATH 211 ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA
- MATH 212 MULTIVARIABLE CALCULUS
- PHYS 201 WAVES, LIGHT, AND HEAT

### Directed Electives in Self-Designed Specialization

Students must complete a total of 6 courses at the 300-level or higher targeting a coherent theme selected with the approval of the department’s undergraduate advisor.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 321</td>
<td>INTRODUCTION TO THEORETICAL GEOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 322</td>
<td>INTRODUCTION TO ENVIRONMENTAL GEOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 323</td>
<td>INTRODUCTION TO CLIMATE CHANGE</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 324</td>
<td>INTRODUCTION TO PLATE TECTONICS</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 27
**Bachelor of Science (BS) Degree with a Major in Earth Science**

**Fall Semester of Senior Year**
Students accepted into the honors thesis program continue to develop and refine their proposed research in concert with their research advisor and thesis committee. Students participate in meetings with other honors thesis candidates to discuss basic research protocols and philosophies, and meet independently with their chosen scientific advisor, and generate data, experiments or models. Students will give oral presentations of their research proposals in public by mid-semester, in the presence of their examining committee. At the end of the semester, students must submit final versions of their proposals, describing motivation, hypothesis, methodology, and preliminary results. The honors thesis committee will evaluate the proposals, and if approved, students can continue in the honors thesis program. Required courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 401</td>
<td>SEMINAR: UNDERGRADUATE HONORS THESIS</td>
<td>1</td>
</tr>
<tr>
<td>ESCI 404</td>
<td>SEMINAR: DEPARTMENT RESEARCH</td>
<td>1</td>
</tr>
<tr>
<td>ESCI 481</td>
<td>UNDERGRADUATE RESEARCH IN EARTH SCIENCE</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring Semester of Senior Year**
Students continue and complete their research. A mid-semester progress report must be submitted to the thesis committee for feedback. At the end of the spring semester, students submit their final theses, and give public oral exit talks. To complete the honors thesis program, student theses must be approved by the honors thesis committee. Required courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 401</td>
<td>SEMINAR: UNDERGRADUATE HONORS THESIS</td>
<td>1</td>
</tr>
<tr>
<td>ESCI 403</td>
<td>SEMINAR: DEPARTMENT RESEARCH</td>
<td>1</td>
</tr>
<tr>
<td>ESCI 481</td>
<td>UNDERGRADUATE RESEARCH IN EARTH SCIENCE</td>
<td>3</td>
</tr>
</tbody>
</table>

Further details about the program, and expectations and criteria for the thesis proposal and final thesis can be found on the Department of Earth, Environmental, and Planetary Sciences website (earthscience.rice.edu).

**Application Process**
Students must apply and be accepted to participate in the senior honors research program. The application form can be downloaded from Department of Earth, Environmental, and Planetary Sciences website (earthscience.rice.edu), and should be submitted along with a ~two page thesis proposal at the end of the spring semester of the junior year. Students will be informed of their acceptance into the honors thesis program before the start of the following fall semester.

**Other Points of Consideration**
Students who are accepted into the 'RUSP Rice Undergraduate Scholars Program' can substitute ESCI 481 courses for semesters 2 and 3 with HONS 470 and HONS 471. However, the students will have to meet all other requirements of the honors thesis set by the department of the honors thesis set by the department.

Other expectations, conditions, and opportunities related to carrying out an Earth Science Honors Thesis can be found on the Department of Earth, Environmental, and Planetary Sciences website: [http://earthscience.rice.edu/academics/undergraduate-program/](http://earthscience.rice.edu/academics/undergraduate-program/)

For additional information, please see the Earth Science major page, on the Department of Earth, Environmental, and Planetary Sciences website: [http://earthscience.rice.edu/](http://earthscience.rice.edu/)