BACHELOR OF ARTS (BA) DEGREE WITH A MAJOR IN MATHEMATICS

Program Learning Outcomes for the BA Degree with a Major in Mathematics

Upon completing the BA degree with a major in Mathematics, students will be able to:

1. Achieve both practical and theoretical fluency in calculus and linear algebra.
2. Acquire a background at the undergraduate level in a wide variety of central areas of mathematics.
3. Be acquainted with formal mathematical reasoning, including proofs.

Requirements for the BA Degree with a Major in Mathematics

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

- A minimum of 12 courses (36 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 60 credit hours outside of major requirements.
- A minimum of 8 courses (24 credit hours) taken at the 300-level or above.

Students who are pursuing 2 majors (i.e., are double majors) are eligible for a course substitution exception in the Elective Requirements. Double majors may substitute approved mathematics-related courses for up to 3 courses (9 credit hours) of the 8 courses (24 credit hours) required at the 300-level or above. Double majors who later drop their second major are required to meet the requirements listed for single majors.

Students receive advanced placement (AP) credit by achieving a score of 4 or 5 on the AP AB-level test or by achieving a score of 4 or 5 on the BC-level test. The credit is articulated as MATH 105 or MATH 106. Declared MATH majors who have had calculus but have not taken the AP test may petition the department for a waiver of the calculus requirements. Entering students should enroll in the most advanced course commensurate with their background; advice is available from the mathematics faculty during Orientation Week and at other times.

The chair of the MATH department's undergraduate committee may modify requirements to meet the needs of specific advanced students. If a course is repeatable for credit, the course may only be repeated once.

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 where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's 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>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT CALCULUS II</td>
<td>3</td>
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<tr>
<td>Select 1 from the following:</td>
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<td>6</td>
</tr>
<tr>
<td>MATH 211 &amp; MATH 212</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA and MULTIVARIABLE CALCULUS</td>
<td>6</td>
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<tr>
<td>MATH 211 &amp; MATH 222</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS and HONORS CALCULUS IV</td>
<td>6</td>
</tr>
<tr>
<td>MATH 220 &amp; MATH 212</td>
<td>HONORS ORDINARY DIFFERENTIAL EQUATIONS and MULTIVARIABLE CALCULUS</td>
<td>6</td>
</tr>
<tr>
<td>MATH 220 &amp; MATH 222</td>
<td>HONORS ORDINARY DIFFERENTIAL EQUATIONS and HONORS CALCULUS IV</td>
<td>6</td>
</tr>
<tr>
<td>MATH 221 &amp; MATH 222</td>
<td>HONORS CALCULUS III and HONORS CALCULUS IV</td>
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### Elective Requirements

Select 8 additional courses from departmental (MATH) course offerings at the 300-level or above.

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### Degree Requirements

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### Core Requirements

- MATH 101 SINGLE VARIABLE CALCULUS I
- MATH 102 SINGLE VARIABLE CALCULUS II
- MATH 211 ORDINARY DIFFERENTIAL EQUATIONS
- MATH 220 HONORS ORDINARY DIFFERENTIAL EQUATIONS
- MATH 212 LINEAR ALGEBRA
- MATH 212 HONORS ORDINARY DIFFERENTIAL EQUATIONS
- MATH 222 HONORS CALCULUS III
- MATH 222 and HONORS CALCULUS IV
- MATH 222 HONORS CALCULUS IV

### Additional Credit Hours to Complete BA Degree Requirements

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<th>Code</th>
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### 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.
The Elective Requirements for the double major are the same as the single major except that students may substitute approved mathematics-related courses for up to 3 courses (9 credit hours) of the 8 courses (24 credit hours) required at the 300-level or above. At most, students can take 1 course (3 credit hours) for any given course number to use toward the major. Additionally, at most 3 credit hours from courses numbered MATH 490 through MATH 499 (research and supervised reading courses) can count towards major requirements.

Policies for the BA Degree with a Major in Mathematics

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: https://oaa.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 Mathematics 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.

Additional Information
For additional information, please see the Mathematics website: http://math.rice.edu/

Opportunities for the BA Degree with a Major in Mathematics

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.

Additional Information
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