Mathematics

Studying mathematics develops such skills as critical thinking, oral and written communication, arguing logically and rigorously, thinking abstractly, formulating and solving problems, analyzing data, analyzing mathematical models, quantitative and computer proficiency, and the ability to work in groups. Employers value these skills; consequently, math majors find themselves in demand by employers for careers in a wide spectrum of fields.

About this Program

- **College:** Liberal Arts and Sciences
- **Degrees:** Bachelor of Arts | Bachelor of Science
- **Credits for Degree:** 120
- **Additional Information**
- **Related Mathematics Programs**

To graduate with this major, students must complete all university, college, and major requirements.

The Department of Mathematics offers two undergraduate degree programs in mathematics: The Bachelor of Science (B.S.) is intended for students who wish to pursue graduate study in mathematics as well as for other strong students with a deep interest in mathematics. The Bachelor of Arts (B.A.) is intended for students who wish to pursue a career in a mathematical field or to teach mathematics at the secondary-school level, but who do not currently contemplate graduate study in mathematics.

Coursework for the Major

Students are required to take eight core courses, providing a broad base in mathematics, and four electives chosen from a list of approved courses. All but two of the core courses are the same for both degrees. Students pursuing the B.A. degree have greater flexibility in their choice of electives, facilitating the possibility of a double-major with another scientific discipline.

A minimum of 39 credits of mathematics and mathematics-approved electives is required for each degree. All coursework for the major must be completed with minimum grades of C, with the exception of MAS 4105 for students in the B.S. specialization, which requires a minimum grade of B.

Relevant Minors and/or Certificates

Mathematics majors are encouraged to consider taking a minor in computer science, industrial and systems engineering, physics, or statistics. The Department of Statistics offers a minor in actuarial science.

More Info

Research

Research and scholarly opportunities are described on the mathematics website under Opportunities for Undergraduates.

More Info

Combined Degree Programs

Mathematics majors who complete the requirements for major by the end of the junior year are eligible for the combined degree program. If admitted to the graduate program, the student will take the graduate sequences MAA 5228 and MAA 5229 and MAS 5311 and MAS 5312 during the senior year. These 12 credits then will apply toward a master’s degree in mathematics as well as toward the undergraduate degree. The student should successfully complete this degree with one additional full-time year of graduate school.

Related Mathematics Programs

- **Combined Degree**
- **Mathematics minor**

Academic Learning Compact

The major in mathematics enables students to develop proficiency in calculus, differential equations, advanced calculus, linear algebra and abstract algebra, and expose them to several other mathematical areas beyond these core fields. Students will learn to read and to construct mathematical proofs, to reason in abstract mathematical systems and to use mathematical models. Students will also acquire the ability to read new mathematics and to formulate mathematical models and arguments.

Before Graduating Students Must

- Be evaluated on your responses to certain examination questions in upper-division courses that are required for your degree.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes (SLOs)

**Content**

2. Bachelor of Science: Explain conceptual and computational competency in core mathematics: calculus, differential equations, advanced calculus, linear algebra and abstract algebra.

**Critical Thinking**

2. Identify correct mathematical arguments in abstract mathematical systems.
3. Develop and analyze mathematical models of scientific problems.

**Communication**

4. Develop and write correct mathematical arguments.

Curriculum Map

*I* = Introduced; *R* = Reinforced; *A* = Assessed
<table>
<thead>
<tr>
<th>Courses</th>
<th>SLO 1</th>
<th>SLO 2</th>
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<tbody>
<tr>
<td>Bachelor of</td>
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<td>Arts</td>
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**Assessment Types**

- Exams