Bachelor of Arts in Mathematics

Admission Requirements

Satisfy the Application and Admission Requirements for Baccalaureate Programs (http://catalog.uaa.alaska.edu/academicpoliciesprocesses/admissions/undergraduate/).

Graduation Requirements

1. Satisfy the General University Requirements for Baccalaureate Degrees (http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/).
2. Complete the General Education Requirements for Baccalaureate Degrees (http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/gers/).
3. Complete the major and additional requirements below.

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH A251</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH A252</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH A253</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH A264</td>
<td>Introduction to the Mathematics Major</td>
<td>1</td>
</tr>
<tr>
<td>MATH A265</td>
<td>Fundamentals of Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH A306</td>
<td>Discrete Methods</td>
<td>3</td>
</tr>
<tr>
<td>MATH A314</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH A401</td>
<td>Introduction to Real Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH A405</td>
<td>Introduction to Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH A420</td>
<td>Historical Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

Analysis and Topology

Select one of the following: 3

- MATH A410   Introduction to Complex Analysis
- MATH A430   Concepts of Topology
- MATH A431   Introduction to Differential Geometry

Applied Math

Select one of the following: 3

- BIOL/CHEM/PHYS A456  Nonlinear Dynamics and Chaos
- MATH A302  Ordinary Differential Equations
- MATH A426  Numerical Analysis
- MATH A432  Partial Differential Equations

Statistics

Select one of the following: 3-4

- MATH A371  Stochastic Processes
- MATH A407  Mathematical Statistics
- STAT A307  Probability and Statistics
- STAT A308  Intermediate Statistics for the Sciences
- STAT A402  Scientific Sampling
- STAT A403  Regression Analysis
- STAT A404  Analysis of Variance
- STAT A407  Time Series Analysis
- STAT A408  Multivariate Statistics
- STAT A410  Statistical Methods

Other Mathematics Courses

Select one of the following: 3

- MATH A305  Introduction to Geometries
- MATH A309  Introduction to Number Theory
- MATH A490  Selected Topics in Mathematics

Select any 6 additional credits from any of the four categories above: 6

Additional Courses

Select 6 credits from the following (a WRTG GER plus one additional selection): 6

- WRTG A212  Writing and the Professions
- WRTG A213  Writing and the Sciences
- WRTG A214  Arguing Across Contexts
- ENGL A311  Writing and Rhetoric in Public Life
- ENGL A312  Advanced Technical Writing
- ENGL A313  Professional Writing
- ENGL A414  Research Writing

Select 6 credits from the following: 6

- COMM A110  Introduction to Human Communication
- COMM A111  Fundamentals of Oral Communication
- COMM A235  Small Group Communication
- COMM A236  Interviewing
- COMM A237  Interpersonal Communication
- COMM A241  Public Speaking
- COMM A341  Advanced Public Speaking
- THR A121  Fundamentals of Acting

Mathematics Capstone Experience

Select 1-3 credits from the following: 1-3

- MATH A495A  Mathematics Practicum
- MATH A495B  Mathematics or Statistics Internship
- MATH A496  Advanced Readings in Mathematics
- MATH A498  Individual Research

Total: 65-68
* A maximum of 6 credits of MATH A490, MATH A495A, MATH A495B, MATH A496 and MATH A498 may be applied to the degree requirements.

**Additional Requirements**

- All mathematics majors must take a standardized test of knowledge of mathematics approved by the mathematics faculty for the purpose of evaluating program effectiveness. There is no minimum score required for graduation. This test will normally be taken during the senior year.
- All mathematics majors must complete a portfolio demonstrating their mathematics knowledge. There is no grade for this requirement. The portfolio will normally be submitted in the semester of graduation.

A total of 120 credits is required for the degree, of which 42 credits must be upper-division.

**Honors in Mathematics**

Students majoring in mathematics are eligible to graduate with departmental honors if they satisfy the following requirements:

1. Meet the requirements for Graduation with Honors (http://catalog.uaa.alaska.edu/academicpoliciesprocesses/academicstandardsregulations/graduation/).
2. Meet the requirements for a BA/BS in Mathematics.
3. Earn a cumulative grade point average of 3.50 or above in the major requirements.
4. Complete a minimum of 12 upper-division credits required for the major in residence.

**Program Student Learning Outcomes**

Students graduating with a Bachelor of Arts in Mathematics will be able to:

- Demonstrate knowledge of the techniques of modern mathematical subjects including all of algebra, analysis, discrete mathematics, and probability and statistics.
- Demonstrate an ability to solve problems using skills such as deductive logic, data analysis, computation, modeling, connections, and other mathematical techniques.
- Demonstrate an ability to create mathematical proofs.
- Demonstrate an ability to read, write, and speak about mathematics.
- Demonstrate cognizance of their mathematical knowledge, of mathematics around them, and of the benefit of continued study of mathematics.