Bachelor of Arts in Mathematics

The Bachelor of Arts (BA) in Mathematics prepares students for careers in academia, K-12 education, and a myriad of jobs requiring a balance of analytical and interpersonal abilities. In addition to a strong mathematics core curriculum, this degree helps to strengthen communication and critical thinking skills.

Admission Requirements

- Complete the Admission Requirements for Baccalaureate Degrees (http://catalog.uaa.alaska.edu/academicpoliciesprocesses/admissions/undergraduate/degrees).

Graduation Requirements

- Complete the General University Requirements for Baccalaureate Degrees (http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/).
- Complete the General Education Requirements for Baccalaureate Degrees (http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/gers/).
- 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.
- Complete the following 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>4-6</td>
</tr>
<tr>
<td>or MATH A251F</td>
<td>F.A.T. Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH A252</td>
<td>Calculus II</td>
<td>4-6</td>
</tr>
<tr>
<td>or MATH A252F</td>
<td>F.A.T. Calculus II</td>
<td></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>
<tr>
<td>MATH A430</td>
<td>Concepts of Topology</td>
<td></td>
</tr>
<tr>
<td>MATH A431</td>
<td>Introduction to Differential Geometry</td>
<td></td>
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</table>

Applied Math

Select one of the following: 3
- MATH A302 Ordinary Differential Equations
- MATH A426 Numerical Analysis
- MATH A432 Partial Differential Equations
- PHYS/BIOL/Chem A456 Nonlinear Dynamics and Chaos

Statistics

Select one of the following: 3-4
- STAT A307 Probability and Statistics
- STAT A308 Intermediate Statistics for the Sciences
- STAT A402 Scientific Sampling
- STAT A403 Regression Analysis
- STAT A407 Time Series Analysis
- STAT A410 Statistical Methods

Other Mathematics Courses

Select one of the following: 3
- MATH A305 Introduction to Geometries
- MATH A309 Introduction to Number Theory

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

Additional Courses

- PHIL A101 Introduction to Logic 3
- 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 in Public Life
  - ENGL A312 Technical Writing and Design
  - ENGL A313 Professional Writing
  - ENGL A414 Research Writing

Select 6 credits from the following: 6
- COMM A111 Fundamentals of Oral Communication
- COMM A235 Small Group Communication
- COMM A237 Interpersonal Communication
- COMM A241 Public Speaking
- COMM A305 Intercultural Communication
- COMM A330 Collaboration and Group Decision Making
- COMM A335 Communication and Conflict
- COMM A340 Nonverbal Communication
- COMM A341 Advanced Public Speaking
- COMM A350 Communication in the Workplace
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<table>
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<th>Course Code</th>
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<tr>
<td>COMM A450</td>
<td>Communication and Leadership</td>
</tr>
<tr>
<td>THR A121</td>
<td>Fundamentals of Acting</td>
</tr>
</tbody>
</table>

**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** 65-72

1 A maximum of 6 credits of MATH A495A, MATH A495B, MATH A496 and MATH A498 may be applied to the degree requirements.

A minimum of 120 credits is required for the degree, of which 39 credits must be upper-division.

**Honors in Mathematics**

The Bachelor of Arts in Mathematics recognizes distinguished achievement by conferring programmatic honors in mathematics. In order to receive honors in mathematics, a student must meet the following requirements:

- Meet the requirements for Graduation with Honors (http://catalog.uaa.alaska.edu/academicpoliciesprocesses/academicstandardsregulations/graduation/) as outlined in the catalog;
- Meet the requirements for a BA/BS in Mathematics;
- Earn a minimum cumulative GPA of 3.50 in the major requirements;
- 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.