# B.A., Mathematics

## Program Requirements
Students must earn a C- grade or better in each course.

## Minimum Requirements for Mathematics

### B.A.: 120 credits

**CONCENTRATIONS:** MATHEMATICS (P. 1), STATISTICS (P. 1)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td></td>
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<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH F265</td>
<td>Introduction to Mathematical Proofs</td>
<td>3</td>
</tr>
<tr>
<td>MATH F314</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH F401</td>
<td>Introduction to Real Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH F405</td>
<td>Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH F406</td>
<td>Senior Seminar</td>
<td>2</td>
</tr>
<tr>
<td>MATH F407</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH F409</td>
<td>Introduction to Complex Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH F410</td>
<td>Number Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH F412</td>
<td>Statistical Consulting Seminar</td>
<td>1</td>
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Complete 2 of the following:

- MATH F307  Discrete Mathematics
- MATH F426  Numerical Analysis
- STAT F300  Statistics

**Additional 3 elective credits**

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<th>Credits</th>
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### Elective Package for Mathematics Teachers (Grades 7-12)

Complete one from the following:

- MATH F307  Discrete Mathematics
- MATH F320  Topics in Combinatorics
- MATH F321  Number Theory

Complete 2 from the following:

- MATH F302  Differential Equations
- MATH F410  Introduction to Complex Analysis
- MATH F426  Numerical Analysis
- MATH F432  Introduction to Partial Differential Equations
- MATH F460  Mathematical Modeling

### Applied Math Suggested Elective Package

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<tr>
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Complete at least 21 additional credits of electives.

The following are some suggested elective packages:

- **Pure Math Suggested Elective Package**
  - MATH F305  Geometry
  - MATH F320  Topics in Combinatorics
  - or MATH F321  Number Theory
  - MATH F404  Introduction to Topology
  - MATH F410  Introduction to Complex Analysis
  - additional 9 elective credits

- **Applied Math Suggested Elective Package**

## Concentrations

### MATHEMATICS CONCENTRATION

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  - MATH F305  Geometry
  - MATH F320  Topics in Combinatorics
  - or MATH F321  Number Theory
  - MATH F404  Introduction to Topology
  - MATH F410  Introduction to Complex Analysis
  - additional 9 elective credits

- **Applied Math Suggested Elective Package**

### STATISTICS CONCENTRATION

<table>
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Complete 2 of the following:

- MATH F307  Discrete Mathematics
- MATH F426  Numerical Analysis
- STAT F300  Statistics

**Additional 3 elective credits**

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Complete the following:

- CS F201  Computer Science I
- MATH F305  Geometry
- MATH F316  Introduction to the History and Philosophy of Mathematics
- STAT F300  Statistics
- or MATH F371  Probability
- or MATH F408  Mathematical Statistics

### Elective Package for Mathematics Teachers (Grades 7-12)

Complete one from the following:

- MATH F307  Discrete Mathematics
- MATH F320  Topics in Combinatorics
- MATH F321  Number Theory

Complete 2 from the following:

- MATH F302  Differential Equations
- MATH F410  Introduction to Complex Analysis
- MATH F426  Numerical Analysis
- MATH F432  Introduction to Partial Differential Equations
- MATH F460  Mathematical Modeling

### Statistics Concentration

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Complete the following:

- CS F201  Computer Science I
- or NRM F338  Introduction to Geographic Information Systems
- ENGL F314  Technical Writing
- or ENGL F414  Research Writing
- MATH F371  Probability
- MATH F401  Introduction to Real Analysis
- or MATH F405  Abstract Algebra
- MATH F408  Mathematical Statistics
- STAT F300  Statistics
- STAT F401  Regression and Analysis of Variance
- STAT F402  Scientific Sampling
- STAT F454  Statistical Consulting Seminar

**Additional 3 elective credits at the F300 level or above**

Complete one from the following:

- MATH F307  Discrete Mathematics
- MATH F320  Topics in Combinatorics
- or MATH F321  Number Theory

Complete 2 from the following:

- MATH F302  Differential Equations
- MATH F410  Introduction to Complex Analysis
- MATH F426  Numerical Analysis
- MATH F432  Introduction to Partial Differential Equations
- MATH F460  Mathematical Modeling
B.A., Mathematics

1. Fullfills the baccalaureate capstone requirement.

2. Acceptable elective courses include any math or statistics course at the F300 level or above, and CS F201. At least 15 credits must be math courses. In some cases, courses with strong mathematical content from other disciplines may be used as electives. Such an elective must be approved by an advisor in the Department of Mathematics and Statistics. The requirement that at least 15 credits be math courses still applies.

3. We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in their undergraduate degree program, so that they can be appropriately advised of the State of Alaska requirements for teacher licensure. Students may choose to pursue a double major with education or complete a postbaccalaureate teacher certification program.

4. Acceptable elective courses include any MATH or STAT course at the F300 level or above. In some cases, courses with strong mathematical content from other disciplines may be used as electives. Such an elective must be approved by an advisor in the Department of Mathematics and Statistics.

Note: All mathematics majors — including double majors — must have an advisor from the Department of Mathematics and Statistics.

Note: At least 12 approved mathematics credits at the F300 level or above must be taken while in residence on the Troth Yeddha (Fairbanks campus).