# B.A. OR B.S., MATHEMATICS

Minimum Requirements for Degree: 120 credits

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

**Pre-major Requirement**

Students must be ready to matriculate into MATH F251X before they will be allowed to declare mathematics as their major.

**General University Requirements**

Complete the general university requirements. ([http://catalog.uaf.edu/bachelors](http://catalog.uaf.edu/bachelors))

**General Education Requirements**

Complete the general education requirements. ([http://catalog.uaf.edu/bachelors/general-education-requirements](http://catalog.uaf.edu/bachelors/general-education-requirements))

As part of the general education requirements, complete:

- MATH F251X  
  Calculus I

**B.A. or B.S. Degree Requirements**

Select one from the following:

- Complete the B.A. degree requirements. ([http://catalog.uaf.edu/bachelors/summary-of-bachelors-degree-reqs/#bachelorofartstext](http://catalog.uaf.edu/bachelors/summary-of-bachelors-degree-reqs/#bachelorofartstext))
  As part of the B.A. requirements, complete:
  - MATH F252X  
    Calculus II

- Complete the B.S. degree requirements. ([http://catalog.uaf.edu/bachelors/summary-of-bachelors-degree-reqs/#bachelorsciencetext](http://catalog.uaf.edu/bachelors/summary-of-bachelors-degree-reqs/#bachelorsciencetext))
  As part of the B.S. requirements, complete:
  - MATH F252X  
    Calculus II
  - PHYS F103X  
    College Physics I
  - PHYS F104X  
    General Physics II
  - or PHYS F211X  
    General Physics I
  - and PHYS F212X  
    General Physics II

**Program Requirements**

- MATH F253X  
  Calculus III
- MATH F265  
  Introduction to Mathematical Proofs
- MATH F314  
  Linear Algebra

Select one from the following options:  

**Mathematics Option**

- MATH F401  
  Introduction to Real Analysis
- MATH F405  
  Abstract Algebra
- MATH F490  
  Senior Seminar  
  Select at least 21 additional credits of electives. Following are some suggested elective packages.  

**Pure Math:**

- MATH F305  
  Geometry
- MATH F320  
  Topics in Combinatorics
  or MATH F321  
  Number Theory
- MATH F404  
  Topology
- MATH F422  
  Introduction to Complex Analysis
- Additional 9 elective credits

**Applied Math:**

- MATH F302  
  Differential Equations
- MATH F421  
  Applied Analysis
- MATH F422  
  Introduction to Complex Analysis
- MATH F460  
  Mathematical Modeling

Select two from the following:

- MATH F307  
  Discrete Modeling
- MATH F310  
  Numerical Mathematics
- STAT F300  
  Statistics

**Statistics Option**

- 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

**Total Credits**  
39

1. Fulfills 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).

**Notes:**

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

- At least 12 approved mathematics credits at the F300 level or above must be taken while in residence on the Fairbanks campus.

**Requirements for Mathematics Teachers (Grades 7-12)**

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

- CS F201  
  Computer Science I
- MATH F305  
  Geometry
- MATH F306  
  Introduction to the History and Philosophy of Mathematics
- STAT F300  
  Statistics
  or MATH F371  
  Probability
  and MATH F408  
  Mathematical Statistics

Select one from the following:

- MATH F320  
  Topics in Combinatorics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MATH F321</td>
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Total Credits: 21-22