Mathematics B.S./Statistics and Data Science M.S.

Program Requirements

Minimum Requirements for Mathematics B.S./Statistics and Data Science M.S.: 138 credits

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General University Requirements</strong></td>
<td>Complete the general university requirements. (<a href="https://catalog.uaf.edu/bachelors/#bachelorofsciencetext">https://catalog.uaf.edu/bachelors/#bachelorofsciencetext</a>)</td>
<td>36-40</td>
</tr>
<tr>
<td><strong>General Education Requirements</strong></td>
<td>Complete the general education requirements. (<a href="https://catalog.uaf.edu/bachelors/#generaleducationrequirementstext">https://catalog.uaf.edu/bachelors/#generaleducationrequirementstext</a>)</td>
<td>16</td>
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<tr>
<td><strong>B.S. Degree Requirements</strong></td>
<td>Complete the B.S. degree requirements. (<a href="https://catalog.uaf.edu/bachelors/#bachelorofsciencetext">https://catalog.uaf.edu/bachelors/#bachelorofsciencetext</a>)</td>
<td>115-119</td>
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Undergraduate Mathematics Program Requirements

Complete the following:

- **Computer Science/Mathematics**
  - CS F201: Computer Science I 3
  - or NRM F338: Introduction to Geographic Information Systems 3
  - ENGL F314: Technical Writing 3
  - or ENGL F414: Research Writing 3
  - MATH F265: Introduction to Mathematical Proofs 3
  - MATH F314: Linear Algebra 3
  - MATH F371: Probability 3
  - MATH F401: Introduction to Real Analysis 3
  - or MATH F405: Abstract Algebra 3
  - MATH F408: Mathematical Statistics 3
  - STAT F300: Statistics 3
  - STAT F401: Regression and Analysis of Variance 4
  - STAT F454: Statistical Consulting Seminar 1
  - Upper-division mathematics or statistics electives 3

Upper-division electives must be approved by an advisor in the Department of Mathematics and Statistics.

Complete the following admission requirements:

- Current admission into a baccalaureate degree program
- At least a 3.0 cumulative GPA
- Completion of 24 credits in the undergraduate major program requirements
- Junior standing

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

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

Graduate: Degree Requirements

Complete the graduate general university requirements. ([https://catalog.uaf.edu/masters/#gurmastersdegreestext](https://catalog.uaf.edu/masters/#gurmastersdegreestext))

Master's Degree Requirements

Complete the master's degree requirements. ([https://catalog.uaf.edu/masters/#masterofsciencetext](https://catalog.uaf.edu/masters/#masterofsciencetext))

As part of the master's degree requirements, complete the following:

- STAT F698: Non-thesis Research/Project 6
- **Graduate Statistics and Data Science Program Requirements**
  Complete the following:
  - STAT F402: Scientific Sampling 3
  - STAT F651: Statistical Theory I 3
  - STAT F652: Statistical Theory II 3
  - STAT F653: Statistical Theory III: Linear Models 3
  - STAT F654: Statistical Consulting Seminar 1
  - Complete two of the following:
    - STAT F461: Applied Multivariate Statistics 3
    - STAT F602: Experimental Design 3
    - STAT F605: Spatial Statistics 3
    - STAT F611: Time Series 3
    - STAT F621: Nonparametric Statistics and Machine Learning 3
    - STAT F631: Categorical Data Analysis 3
    - STAT F641: Bayesian Statistics 3
    - STAT F661: Sampling Theory 3
  - Complete the following:
    - Graduate Statistics Electives 3 6

Total Credits 115-119

1. Fulfills the baccalaureate capstone requirement.
2. Acceptable elective courses include any mathematics or statistics course at the F300 level or above. In some cases, courses with strong statistical 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.
3. Acceptable elective courses include any statistics course at the F600 level or above. In some cases, courses with strong statistical 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.
Learning Outcomes

Learning Outcomes are measurable statements that describe knowledge or skills achieved by students upon completion of the program.

Students graduating from this program will be able to:

- Attain mastery of core mathematical concepts at the baccalaureate-level comparable to those at other institutions
- Have opportunities to develop the necessary skills to achieve their career goals in mathematics
- Understand and write formal mathematical arguments; they will demonstrate the ability to solve problems using mathematics and to independently craft effective written explanations of mathematical material
- Master a wide variety of statistical tests, procedures, and sampling methodologies, and will be able to design experiments and analyze data using software including R
- Understand and be able to use statistical theory
- Have consulting skills
- Display effective written communication skills