Bachelor of Science in Mathematics

The department offers undergraduate preparation for positions in government, business, and industry and for graduate work in mathematics and statistics. Each student’s major program is individually constructed in consultation with an advisor.

Upper-division courses used to satisfy major requirements must be taken for letter grades, and only one D grade (D+ or D or D−) may be counted toward the upper-division requirement. At least 12 credits in upper-division mathematics courses must be taken in residence at the university.

Statistical Methods I (MATH 425) cannot be used to satisfy requirements for a mathematics major or minor.

To qualify for a bachelor’s degree with a major in mathematics, a student must satisfy the requirements for one of three options: the standard track, pure mathematics, or secondary teaching. In each option, most courses require calculus as a prerequisite, and in each option some of the courses require satisfying the bridge requirement.

Bachelor of Science: Standard Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 253</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 281–282</td>
<td>Several-Variable Calculus I-II</td>
<td>8</td>
</tr>
<tr>
<td>MATH 341–342</td>
<td>Elementary Linear Algebra</td>
<td>8</td>
</tr>
<tr>
<td>CS 122</td>
<td>Introduction to Programming and Problem Solving</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following sets of Bridge courses:  

- MATH 231–232 and two of MATH 201–206  
- MATH 261–262 and two of MATH 201–206  
- MATH 307 and four of MATH 201–206

Select one of the following Fundamentals sequences:  

- MATH 316–317 Fundamentals of Analysis I-II  
- MATH 347–348 Fundamentals of Number Theory I-II  
- MATH 391–392 Fundamentals of Abstract Algebra I-II

Select four of the following, including at least one two-term sequence:  

- MATH 316 Fundamentals of Analysis I  
- MATH 317 Fundamentals of Analysis II  
- MATH 320 Theory of Differential Equations  
- MATH 343 Statistical Models and Methods
- MATH 347 Fundamentals of Number Theory I  
- MATH 348 Fundamentals of Number Theory II  
- MATH 351 Elementary Numerical Analysis I  
- MATH 352 Elementary Numerical Analysis II  
- MATH 391 Fundamentals of Abstract Algebra I  
- MATH 392 Fundamentals of Abstract Algebra II  
- MATH 394 Geometries from an Advanced Viewpoint I  
- MATH 395 Geometries from an Advanced Viewpoint II

Total Credits 60

1. For students who have completed Calculus with Theory I-III (MATH 261–263) with a grade of mid-C or better, the department will waive the requirement for Fundamentals of Analysis I-II (MATH 316–317).


3. Students cannot receive credit for both Statistical Models and Methods (MATH 343) and Introduction to Mathematical Methods of Statistics II (MATH 462).

Bachelor of Science: Pure Mathematics

<table>
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<td>Fundamentals of Analysis I-II</td>
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</tr>
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<td>CS 122</td>
<td>Introduction to Programming and Problem Solving</td>
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</table>

Select one of the following sets of Bridge courses:  

- MATH 231–232 Elements of Discrete Mathematics I-II (and two from MATH 201–206)  
- MATH 261–262 Calculus with Theory I-II (and two from MATH 201–206)  
- MATH 307 Introduction to Proof (and four from MATH 201–206)
Bachelor of Science in Mathematics

Select one of the following Abstract Algebra sequences: 8
- MATH 391–392: Fundamentals of Abstract Algebra I-II
- MATH 444–445: Introduction to Abstract Algebra I-II

Select two of the following: 8
- MATH 320: Theory of Differential Equations
- MATH 343: Statistical Models and Methods
- MATH 345M: Probability and Statistics for Data Science
- DSCI 345M: Probability and Statistics for Data Science

- MATH 347: Fundamentals of Number Theory I
- MATH 348: Fundamentals of Number Theory II
- MATH 391–392: Fundamentals of Abstract Algebra I-II
- MATH 392: Fundamentals of Abstract Algebra II
- MATH 394: Geometries from an Advanced Viewpoint I
- MATH 395: Geometries from an Advanced Viewpoint II
- MATH 397: History and Applications of Calculus
- MATH 411: Functions of a Complex Variable I
- MATH 412: Functions of a Complex Variable II
- MATH 413: Introduction to Analysis I
- MATH 414: Introduction to Analysis II
- MATH 415: Introduction to Analysis III
- MATH 421M: Partial Differential Equations: Fourier Analysis I
- MATH 422: Partial Differential Equations: Fourier Analysis II
- MATH 431: Introduction to Topology
- MATH 432: Introduction to Topology
- MATH 433: Introduction to Differential Geometry
- MATH 441: Linear Algebra
- MATH 444: Introduction to Abstract Algebra I
- MATH 445: Introduction to Abstract Algebra II
- MATH 446: Introduction to Abstract Algebra III
- MATH 461: Introduction to Mathematical Methods of Statistics I
- MATH 462: Introduction to Mathematical Methods of Statistics II
- MATH 463: Mathematical Methods of Regression Analysis and Analysis of Variance
- MATH 467: Stochastic Processes

Total Credits: 60

For students who have completed Calculus with Theory I-III (MATH 261–263) with grades of mid-C or better, the department will waive the requirement for Fundamentals of Analysis I-II (MATH 316–317).

After completing Introduction to Mathematical Methods of Statistics II (MATH 462), students cannot receive credit for: Statistical Models and Methods (MATH 343), Probability and Statistics for Data Science (MATH 345M), nor Probability and Statistics for Data Science (DSCI 345M).

Students can only use one of the following toward the two-course upper-division requirement: Statistical Models and Methods (MATH 343), Probability and Statistics for Data Science (MATH 345M), Probability and Statistics for Data Science (DSCI 345M), and Introduction to Mathematical Methods of Statistics II (MATH 462).

Bachelor of Science: Secondary Teaching

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<td>Elementary Linear Algebra</td>
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<td>MATH 343</td>
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<td>CS 122</td>
<td>Introduction to Programming and Problem Solving</td>
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</tr>
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</table>

Select one of the following sets of Bridge courses: 12
- MATH 231–232: Elements of Discrete Mathematics I-II (and two from MATH 201–206)
- MATH 261–262: Calculus with Theory I-II (and two from MATH 201–206)
- MATH 307: Introduction to Proof (and four from MATH 201–206)

Select two of the following Fundamentals sequences: 16
- MATH 316–317: Fundamentals of Analysis I-II
- MATH 347–348: Fundamentals of Number Theory I-II
- MATH 391–392: Fundamentals of Abstract Algebra I-II
- MATH 394–395: Geometries from an Advanced Viewpoint I-II
- MATH 397: History and Applications of Calculus

Total Credits: 60

1. For students who have completed Calculus with Theory I-III (MATH 261–263) with grades of mid-C or better, the department will waive the requirement for Fundamentals of Analysis I-II (MATH 316–317).

2. The two-term abstract algebra sequence—Introduction to Abstract Algebra I (MATH 444), Introduction to Abstract Algebra II (MATH 445)—cannot also count toward the two upper-division electives.