MATHEMATICS, B.S.

Mathematics is an excellent major for the student whose immediate objective is to acquire a strong liberal arts education. Graduates may go on to work as an actuary with insurance companies; as a data analyst with pharmaceutical, biotechnology, or health care companies; as a quality assurance specialist with engineering companies; or in government agencies such as FDA, EPA, NSA, or USDA.

The B.S. program is more technically oriented than the B.A. program. It provides solid preparation for work or study in mathematics or a related field. Students wanting to go to graduate school are encouraged to consider the Accelerated Degree Program (ADP) (p. 2) to earn a B.S. and M.A. in 5 years. Strong students can graduate with Disciplinary Honors (https://catalog.uncg.edu/arts-sciences/mathematics-statistics/#programstext).

An undergraduate degree in mathematics also provides excellent preparation for graduate studies in many areas, including actuarial sciences, computer science, economics, engineering, law, mathematics, operations research, and statistics. The major can be specialized to allow preparation for any of these goals.

Overall Requirements

- 120 credit hours, to include at least 36 credits at or above the 300 course level
- Minimum grade of C (2.0) required for all CSC, MAT, and STA courses to count toward the major.
- Students planning to pursue graduate study should contact their advisor as soon as possible to prepare a plan of study

Degree Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>University Requirements (<a href="https://catalog.uncg.edu/academic-regulations-policies/undergraduate-policies">https://catalog.uncg.edu/academic-regulations-policies/undergraduate-policies</a>)</td>
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<tr>
<td></td>
<td>General Education Core Requirements (GEC) (<a href="https://catalog.uncg.edu/academic-regulations-policies/undergraduate-policies/general-education-program/#generaleducationcorerequirementstext">https://catalog.uncg.edu/academic-regulations-policies/undergraduate-policies/general-education-program/#generaleducationcorerequirementstext</a>)</td>
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</tr>
<tr>
<td></td>
<td>College of Arts and Sciences Additional Requirements (LEC) (<a href="https://catalog.uncg.edu/arts-sciences/#additionalundergraduaterequirementstext">https://catalog.uncg.edu/arts-sciences/#additionalundergraduaterequirementstext</a>)</td>
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</tbody>
</table>

Major Requirements

Select one of the concentrations as detailed following the major requirements.

- Mathematics
- Statistics

Electives

Electives sufficient to complete the 120 credit hours required for degree.
# Statistics Concentration Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 191</td>
<td>Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>MAT 292</td>
<td>Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>MAT 293</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MAT 310</td>
<td>Elementary Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MAT 394</td>
<td>Calculus IV</td>
<td>3</td>
</tr>
<tr>
<td>MAT 490</td>
<td>Senior Seminar in Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>STA 290</td>
<td>Introduction to Probability and Statistical Inference</td>
<td>3</td>
</tr>
</tbody>
</table>

## Core Courses

- **MAT 191**: Calculus I  
- **MAT 292**: Calculus II  
- **MAT 293**: Calculus III  
- **MAT 310**: Elementary Linear Algebra  
- **MAT 394**: Calculus IV  
- **MAT 490**: Senior Seminar in Mathematics  
- **STA 290**: Introduction to Probability and Statistical Inference

## Required

- **CSC 130**: Introduction to Computer Science  
  or **CSC 230**: Elementary Data Structures and Algorithms  
- **STA 301**: Statistical Methods  
- **STA 352**: Statistical Inference

## Additional STA Courses

Select three additional STA courses at the 300 level or above.

## Additional Courses

Two additional courses chosen from the following:

- **CSC 427**: Numerical Analysis and Computing  
- **CSC 425**: Bioinformatics  
- **MAT 253**: Discrete Mathematical Structures  
- **MAT 311**: Introduction to Abstract Algebra  
- **MAT 353**: Introduction to Discrete Mathematics  
- **MAT 390**: Ordinary Differential Equations  
- **MAT 395**: Introduction to Mathematical Analysis  
- **MAT 431**: Combinatorial Analysis  
- **MAT 441**: Stochastic Processes  
- **MAT 442**: Stochastic Processes  
- **MAT 486**: Financial Math for Actuaries  
- Any STA 300-level or above course

## Recommended

- **ISM 218**: Database Systems  
- **ENG 327**: Writing for Professionals and Entrepreneurs

*One of the courses must be at the 400 level.*

**Or any STA course at the 300 level or above.*

† The department also recommends these courses and course work in an area of application beyond the GEC requirements (e.g., Biology, Psychology, etc.)

† Counts toward GEC GMT requirement.

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**Accelerated B.A. or B.S. to M.A. in Mathematics**

**Application and Admission**

Qualified UNC Greensboro undergraduate students who are pursuing the B.A. or B.S. in Mathematics may apply for admission to the Accelerated Degree and the M.A. in Mathematics program. A cumulative undergraduate GPA of at least 3.5 based on at least 30 credits earned at UNC Greensboro is required. Applicants must have completed at least 60 credits and may not apply for admission to the ADP before the first semester of the junior year. Applicants are also required to take the Graduate Record Examination. All applicants must submit the Request for Accelerated Degree Program to the Graduate School and must simultaneously apply for admission to the M.A. program in Mathematics.

Admitted students may apply up to 12 credits of graduate-level coursework toward completion of both the undergraduate and graduate degree, provided that they earn a grade of “B” (3.0) or better in the course and fulfill graduate-level requirements. The graduate courses the student will take within the Accelerated Degree Program in Mathematics must be approved by the Director of Graduate Study, must be specified on the Request for Accelerated Degree Program, and must be chosen from among the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 695</td>
<td>Mathematical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MAT 696</td>
<td>(COURSE INACTIVE)</td>
<td>3</td>
</tr>
<tr>
<td>STA 631</td>
<td>Introduction to Probability</td>
<td>3</td>
</tr>
<tr>
<td>STA 632</td>
<td>Intro Mathematical Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STA 661</td>
<td>Advanced Statistics in the Behavioral and Biological Sciences I</td>
<td>3</td>
</tr>
<tr>
<td>STA 662</td>
<td>Advanced Statistics in the Behavioral and Biological Sciences II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Degree Program Requirements**

Please consult with an advisor to determine how the courses taken at the graduate level will meet requirements in the bachelor’s degree program. All degree requirements for the M.A. in Mathematics will remain the same.