MATHEMATICS, B.A.

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.A. program is more flexible than the B.S. program. It allows one to specialize in mathematics and at the same time either to follow a broad liberal arts program or to specialize in a second area (possibly even taking a second major). Students wanting to go to graduate school are encouraged to consider the Accelerated Degree Program (ADP) (https://catalog.uncg.edu/arts-sciences/mathematics-statistics/mathematics-bs/#acceleratedbaorbstomatext) to earn a B.A. and M.A. in 5 years. Strong students can graduate with Disciplinary Honors (p.).

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
- A minimum grade of C (2.0) is required for all CSC, MAT, and STA courses to count towards the major core and the concentrations

Degree Program Requirements

Code	Title	Credit Hours
University Requirements (https://catalog.uncg.edu/academic-regulations-policies/undergraduate-requirements/undergraduate-degrees-and-degree-requirements/)		
General Education Requirements (MAC) (https://catalog.uncg.edu/academic-regulations-policies/undergraduate-requirements/general-education-program/#generaleducationcorerequirementstext)		
College of Arts and Sciences Additional Requirements (CIC) (https://catalog.uncg.edu/arts-sciences/#additionalundergraduaterequirementstext)		

Major Requirements

Code	Title	Credit Hours
Core Courses		**9**
MAT 310	Elementary Linear Algebra	
MAT 490	Senior Seminar in Mathematics	
STA 290	Introduction to Probability and Statistical Inference	
Calculus Sequence		**12**
Select one of the two calculus sequences below: *		
Four three-credit hour courses		
MAT 191	Calculus I	
& MAT 292	and Calculus II	
& MAT 293	and Calculus III	
& MAT 394	and Calculus IV	
Or three four-credit hour courses		
MAT 196	Calculus A	
& MAT 296	and Calculus B	
& MAT 396	and Calculus C	

* *If you need to take a combination of courses from both sequences contact your advisor.*

Concentrations

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

- General Mathematics
- Health Informatics
- Statistics

Electives

Electives sufficient to complete the 120 credit hours required for degree.

General Mathematics Concentration Requirements

- A minimum grade of C (2.0) is required for all CSC, MAT, and STA courses to count towards the major core and the concentration.

Code	Title	Credit Hours
Programming Course		**3**
Select one of the following:		
CSC 120	Introduction to Computer Programming for Non-Majors	
CSC 130	Introduction to Computer Science	
CSC 230	Elementary Data Structures and Algorithms	
Additional Mathematics Courses		**12**
MAT 253	Discrete Mathematical Structures	
MAT 311	Introduction to Abstract Algebra	
MAT 390	Ordinary Differential Equations	
MAT 395	Introduction to Mathematical Analysis	
Advanced Mathematics Courses		**3**
Select one MAT course at the 400 level. *		

* The following courses are not eligible:
- MAT 405
- MAT 406
- MAT 465

Health Informatics Concentration Requirements

- A minimum grade of C (2.0) is required for all CSC, MAT, and STA courses to count towards the major core and the concentration.

Code	Title	Credit Hours
Additional Mathematics Courses		**13**
STA 301	Statistical Methods	

STA 352	Statistical Inference	
MAT 253	Discrete Mathematical Structures	
MAT 390	Ordinary Differential Equations	
STA 440	SAS System for Statistical Analysis	
Advanced Mathematics Courses		**3**
Select one of the following:		
MAT 427	Numerical Methods	
MAT 451	Topological Data Analysis	
STA 442	Statistical Computing	
STA 465	Analysis of Survival Data	
STA 481	Introduction to Design of Experiments	
Computing Courses		**12**
CSC 330	Advanced Data Structures	
Select one of the two introductory computer science sequences		
CSC 120 & CSC 220	Introduction to Computer Programming for Non-Majors and Elementary Data Structures-A Transition	
CSC 130 & CSC 230	Introduction to Computer Science and Elementary Data Structures and Algorithms	
Select one of the following:		
CSC 405	Data Science	
CSC 410	Big Data and Machine Learning	
CSC 416	Digital Image Processing	
CSC 425	Bioinformatics	
CSC 471	Principles of Database Systems	
Health Sciences Courses		**15**
BIO 111 & 111L	Principles of Biology I and Principles of Biology I Laboratory	
CHE 111 & CHE 112	General Chemistry I and General Chemistry I Laboratory	
CHE 114 & CHE 115	General Chemistry II and General Chemistry II Laboratory	
HEA 308	Introduction to Public Health	

Statistics Concentration Requirements

- A minimum grade of C (2.0) is required for all CSC, MAT, and STA courses to count towards the major core and the concentration.

Code	Title	Credit Hours
Programming Course		**3**
Select one of the following		
CSC 120	Introduction to Computer Programming for Non-Majors	
CSC 130	Introduction to Computer Science	
CSC 230	Elementary Data Structures and Algorithms	
Additional Statistics Courses		**12**
STA 301	Statistical Methods	
STA 352	Statistical Inference	
Select two additional STA courses at the 300 level or above.		
Advanced Statistics Course		**3**
Select one STA course at the 400 level.		

Disciplinary Honors in Mathematics

Requirements

- A minimum of 12 credit hours as detailed below.
- UNC Greensboro cumulative GPA of 3.30 or better or, for transfer students, cumulative GPA of 3.30 or better from all prior institutions.
- A grade of B or higher in all course work used to satisfy the Honors requirement in Mathematics

Code	Title	Credit Hours
Required		**6-9**
MAT 493	Honors Work *	
HSS 490	Senior Honors Project	
Select two courses from the following:		**6**
MAT 310	Elementary Linear Algebra	
MAT 311	Introduction to Abstract Algebra	
MAT 390	Ordinary Differential Equations	
MAT 395	Introduction to Mathematical Analysis	

* *To be taken before* HSS 490

Recognition

Receive a Certificate of Disciplinary Honors in Mathematics; have that accomplishment, along with the title of the Senior Honors Project, noted on the official transcript; and be recognized at a banquet held at the end of the spring semester.

Honors Advisor

Contact Richard Fabiano at fabiano@uncg.edu for further information and guidance about Honors in Mathematics.

To apply: https://honorscollege.uncg.edu/lloyd-international-honors-college/academics/admissions-scholarships/disciplinary-honors-admissons/.

Application and Admission

Qualified UNC Greensboro undergraduate students who are pursuing the B.A. in Mathematics, the B.S. in Mathematics, or the B.S. in Statistics may be nominated to participate in the Accelerated Master's Program (AMP) by the Graduate Program Director. Students must have completed a minimum of 60 credit hours with at least 30 credits and a cumulative undergraduate GPA of at least 3.5 at UNC Greensboro.

Courses

Admitted students may apply up to 12 credits of graduate-level course work 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 Master's Program in Applied Statistics must be approved by the Graduate Program Director, must be specified on the Accelerated Master's Program request, and must be selected from the following list.

Code	Title	Credit Hours
STA 602	Statistical Methods for Data Analytics	3
STA 606	Solving Problems with Data Analytics	3
STA 631	Introduction to Probability	3
STA 632	Introduction to Mathematical Statistics	3

STA 642	Statistical Computing	3
STA 670	Categorical Data Analysis	3

Please consult with your undergraduate advisor to determine how the courses taken at the graduate level will meet requirements in the bachelor's degree program. All requirements for the M.S. in Applied Statistics remain the same.