Mathematics, Statistics Concentration, B.S.

The Department of Mathematics and Statistics offers an undergraduate program of study leading to a Bachelor of Science (B.S.) degree in Mathematics with a Concentration in Statistics. Mathematics majors study relationships and patterns between numbers, structures, and processes. Math majors in the Statistics concentration take 12 credit hours of calculus, linear algebra, an introductory computer programming course, probability and statistics, applied regression, and upper-level electives such as design of experiments, time series analysis, multivariate analysis, applied statistics, and statistical computing, among others.

All program-level Admissions and Progression Requirements are in addition to the University of North Carolina at Charlotte Admission Requirements.

Admission Requirements

Freshmen and Transfers

- See University Admission Requirements
- *Minimum GPA:* 2.0
- *Prerequisite Courses:* GPA of at least 2.0 in each of the following categories:
  - All MATH, STAT, and OPRS courses taken
  - All 2000-level and above MATH, STAT, and OPRS courses taken
- *Transferable Credit Hours:* 24

Currently Enrolled Students

- *Declaration of Major:* Change of Major forms accepted year-round. Forms are available on the Math Department web-site. Orientation/advising session is required after declaration.

Degree Requirements

A Bachelor of Science degree in Mathematics with a Concentration in Statistics consists of a minimum of 40 hours of Mathematics and Statistics courses, one programming course in Computer Science (ITCS), 10-12 hours of technical electives, and 18 hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

General Education Courses (31-32 credit hours)

For details on required courses, refer to the General Education Program. Total hours to satisfy General Education Requirements may vary as some general education requirements may be double-counted in the major with departmental approval. Please see your advisor for information.

Foreign Language Requirement (0-8 credit hours)

For details on required courses, refer to the Klein College of Science Foreign Language Requirement.

Major Courses (44-49 credit hours)

Core Courses (19 credit hours)

- ITSC 1212 - Introduction to Computer Science I (4)
- MATH 1241 - Calculus I (3)
- MATH 1242 - Calculus II (3)
- MATH 2241 - Calculus III (3)
- MATH 2242 - Calculus IV (3)
- MATH 2164 - Matrices and Linear Algebra (3)
- MATH 2688 - Mathematics Awareness Seminar (0)

Concentration Courses (15 credit hours)

- MATH 3141 - Advanced Calculus of One Variable (3)
- STAT 3110 - Applied Regression (3)
- STAT 3122 - Probability and Statistics I (3)
- STAT 3123 - Probability and Statistics II (3)
- STAT 3160 - Applied Multivariate Analysis (3)

Restricted Elective Courses (9 credit hours)

Choose three of the following Statistics courses:

- STAT 3140 - Design of Experiments (3)
- STAT 3150 - Time Series Analysis (3)
- STAT 3180 - Predictive Analytics (3)
- STAT 4116 - Statistical Computing (3)
- STAT 4123 - Applied Statistics I (3)
- STAT 4124 - Applied Statistics II (3)

Capstone Project (1-6 credit hours)

Students must complete 1 credit hour in this category. Alternatively, students may complete 6 credit hours towards an Honors project. For more information on the Honors Program in Mathematics, visit the program's page.

- MATH 3689 - Mathematics Project Seminar (1)
  or the sequence:
- MATH 3790 - Junior Honors Seminar (3)
- MATH 3791 - Senior Honors Tutorial (3)

Restricted Technical Elective Courses (10-12 credit hours)

Select 10-12 credit hours from the lists below. *The categories below are only to suggest concentration groups. The courses selected do not need to be within one category.*

Computer Science Group

- ITCS 3153 - Introduction to Artificial Intelligence (3)
- ITSC 3160 - Database Design and Implementation (3)
- ITCS 3162 - Introduction to Data Mining (3)

- ITCS 3190 - Introduction to Cloud Computing for Data Analysis (3)
- ITSC 1213 - Introduction to Computer Science II (4)
- ITSC 2214 - Data Structures and Algorithms (4)
- ECGR 4115 - Convex Optimization and AI Applications (3)

Bioinformatics Group

- ITSC 1213 - Introduction to Computer Science II (4)
- BINF 2111 - Introduction to Bioinformatics Computing (4)
- BINF 3121 - Statistics for Bioinformatics (3)

Econometrics Group

- ECON 2101 - Principles of Economics - Macro (3)
- ECON 2102 - Principles of Economics - Micro (3)
- ECON 3112 - Econometrics (3)
- INFO 2130 - Introduction to Business Computing (3)

Restricted Related Elective Courses (18 credit hours)

Select 18 credit hours of electives in related courses. Elective courses should be chosen from related disciplines or an approved minor in another discipline. Courses that count towards this requirement must have a discipline prefix other than MATH, STAT, or OPRS. Students should select courses in consultation with the department and/or their advisor.

Unrestricted Elective Courses

As needed to complete the credit hours required for graduation.

Degree Total = 120 Credit Hours

Cooperative Education Program

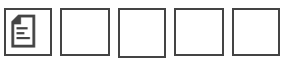
Students may participate in the Mathematics Cooperative Education Program in either the parallel or alternate track. The parallel track combines part-time academic study and part-time cooperative experience during the same semester, while the alternate track alternates semesters totally devoted to work with semesters totally devoted to academic study. Students in the Mathematics Cooperative Education Program must participate in a minimum of two semesters in the program. Students who are in good standing with the University, have a minimum overall GPA of 2.5, and have completed 30 credit hours are eligible to apply. Transfer students are required to complete 12 credit hours at the University prior to application. Students interested in participating in the program should contact the Coordinator of Undergraduate Programs in the Department of Mathematics and Statistics or the University Career Center for information.

Progression Requirements

An overall GPA of at least 2.0 and a GPA of at least 2.0 in all math courses is required.

Honors Program

For details about the Honors Program in Mathematics, visit the program page.



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