Mathematics for Business, 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 for Business. This degree is a practical applied mathematics program that tightens the focus on business applications to better prepare students for a successful career path in the areas of insurance, finance, banking, and economics. Graduates of the Mathematics for Business program are valuable assets to the business community. They bring expertise in Mathematics, Statistics, and Operation Research, along with excellent analytic skills to businesses, financial institutions, insurance firms, and government agencies.

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 Major in Mathematics for Business for the B.S. degree consists of a minimum of 48 hours of approved Mathematics (MATH), Operations Research (OPRS), or Statistics (STAT) courses, one programming course in Computer Science (ITCS), and 18 hours of Business related coursework.

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 (52 credit hours)

Core Courses (40 credit hours)

- ITSC 1212 - Introduction to Computer Science I (4)
- MATH 1241 - Calculus I (3)
- MATH 1242 - Calculus II (3)
- MATH 2164 - Matrices and Linear Algebra (3)
- MATH 2171 - Differential Equations (3)
- MATH 2241 - Calculus III (3)
- MATH 2688 - Mathematics Awareness Seminar (0)
- MATH 3227 - Mathematical Theory of Interest and Applications (3)
- MATH 4051 - Computer Exploration and Generation of Data (3)
- OPRS 3111 - Operations Research: Deterministic Models (3)
- OPRS 3113 - Operations Research: Probabilistic Models (3)
- STAT 3110 - Applied Regression (3)
- STAT 3122 - Probability and Statistics I (3)
- STAT 3123 - Probability and Statistics II (3)

Concentration Courses (12 credit hours)

Students majoring in Mathematics for Business must select one of the following concentrations:

Concentration in Economics/Finance

Required Courses

- MATH 4122 - Probability and Stochastic Models (3)
- MATH 4128 - Risk Theory (3)
- STAT 3150 - Time Series Analysis (3)

Elective Course

Select one of the following:

- MATH 3XXX - Mathematics Elective (3)
- MATH 4XXX - Mathematics Elective (3)
- STAT 3XXX - Statistics Elective (3)
- STAT 4XXX - Statistics Elective (3)
- OPRS 3XXX - Operations Research Elective (3)
- OPRS 4XXX - Operations Research Elective (3)

Concentration in Actuarial Science

Required Courses

- MATH 3228 - Financial Mathematics and General Cash Flows (3)
- MATH 4228 - Life Insurance Mathematics (3)
- STAT 3150 - Time Series Analysis (3)

Elective Course

Select one of the following:

- MATH 3XXX - Mathematics Elective (3)
- MATH 4XXX - Mathematics Elective (3)
- STAT 3XXX - Statistics Elective (3)

- STAT 4XXX - Statistics Elective (3)
- OPRS 3XXX - Operations Research Elective (3)
- OPRS 4XXX - Operations Research Elective (3)

Notes

Recommended Actuarial courses:

- MATH 4229 - Advanced Life Insurance Mathematics (3)
- STAT 3180 - Predictive Analytics (3)
- STAT 4227 - Loss Models and Applications (3)

The following courses prepare students for the following Actuarial Exams and VEE credits:

Exam FM

- MATH 3227 - Mathematical Theory of Interest and Applications (3)
- MATH 3228 - Financial Mathematics and General Cash Flows (3)

Exam P

- STAT 3122 - Probability and Statistics I (3)
- STAT 3123 - Probability and Statistics II (3)

Exam FAM

- MATH 4228 - Actuarial Science IIA (3)
- STAT 4227 - Loss Models and Applications (3)

Exam ALTAM

- MATH 4229 - Actuarial Science IIB (3)

Exam SRM

- STAT 3110 - Applied Regression (3)
- STAT 3150 - Time Series Analysis (3)

- STAT 3160 - Applied Multivariate Analysis (3)
- STAT 3180 - Predictive Analytics (3)
- STAT 4124 - Applied Statistics II (3)

VEE Statistics

- STAT 3123 - Probability and Statistics II. (3)

VEE Economics

- ECON 2101 - Principles of Economics - Macro (3)
- ECON 2102 - Principles of Economics - Micro (3)

VEE Accounting and Financial Management

- ACCT 2121 - Principles of Accounting I (3)
- FINN 3120 - Financial Management (3)

Restricted Business Courses (18 credit hours)

- ACCT 2121 - Principles of Accounting I (3)
- ACCT 2122 - Principles of Accounting II (3)
- ECON 2101 - Principles of Economics - Macro (3)
- ECON 2102 - Principles of Economics - Micro (3)
- FINN 3120 - Financial Management (3)
- INFO 2130 - Introduction to Business Computing (3)

Unrestricted Elective Courses

As needed to complete the credit hours required for graduation.

Degree Total = 120 Credit Hours

Cooperative Education Program

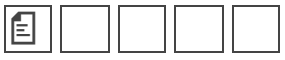
Students may participate in the Mathematics Cooperative Education Program in either the parallel or alternate track. The parallel track combines part-time academic study and part-time cooperative experience during the same semester, while the alternate track alternates semesters totally devoted to work 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.



UNIVERSITY OF NORTH CAROLINA

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