



Pitt

Kenneth P. Dietrich
School of Arts and Sciences

Actuarial Mathematics Major

www.Mathematics.Pitt.edu

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This program offers students an attractive option for those interested in pursuing advanced degrees in mathematical or quantitative finance and master's degrees in business administration, as well as in securing employment in the banking and insurance industries. This multidisciplinary course of study concentrates on applied mathematics with a focus on financial models. In addition to a core curriculum of mathematics courses, students are required to complete specific courses in statistics, economics, and computer science. The capstone courses in the program, MATH 1120 and MATH 1121, follow the most recent syllabi approved by the Society of Actuaries and the Casualty Actuarial Society for the societies' professional examinations in financial mathematics, financial economics, and life contingencies. The department organizes seminars, led by local actuaries, to prepare students for taking these professional society examinations as well as the examination in probability.

Requirements for the Actuarial Mathematics major

Students must complete 63 credits, 46 of which will be in mathematics and statistics.

Basic Calculus; choose one of the following courses

MATH 0240 Analytic Geometry and Calculus 3 or
MATH 0245 Honors Analytic Geometry and Calculus 3

Analysis; choose one of the following courses

MATH 0413 Introduction to Theoretical Mathematics
MATH 0450 Introduction to Analysis

Linear Algebra; choose one of the following courses

MATH 1180 Linear Algebra
MATH 1185 Honors Linear Algebra

Differential Equations; choose one of the following courses

MATH 1270 Ordinary Differential Equations 1
MATH 1275 Honors Ordinary Differential Equations 1

Actuarial Mathematics; all of the following courses

MATH 0470 Actuarial Mathematics 1
MATH 1119 Applied Probability for Actuarial Mathematics
MATH 1121 Actuarial Mathematics 2
MATH 1122 Actuarial Mathematics 3
MATH 1123 Actuarial Mathematics 4
MATH 1124 Actuarial Mathematics 5
MATH 1126 Predictive Analytics 1

Applied Mathematics; two of the following courses

MATH 1100 Linear Programming
MATH 1110 Industrial Mathematics (writing course)
MATH 1280 Ordinary Differential Equations 2
MATH 1360 Modeling in Applied Math 1
MATH 1470 Partial Differential Equations 1
MATH 1530 Advanced Calculus 1
MATH 1540 Advance Calculus 2
MATH 1550 Vector Analysis

Numerical Methods; one of the following courses

MATH 1070 Numerical Mathematical Analysis
MATH 1080 Numerical Linear Algebra
MATH 1127 Predictive Analytics 2

Economics; both of the following courses

ECON 1100 Intermediate Microeconomic Theory
ECON 1110 Intermediate Macroeconomic Theory

Computer Programming; choose one of the following courses

CS 0004 Introduction to Computer Programming in BASIC
CS 0007 Introduction to Computer Programming in Java
CS 0008 Introduction to Computer Programming in Python
CS 0401 Programming in Java
STAT 1301 Statistical Packages
BUSMIS 1060 Introduction to Information Systems
ENGR 0012 Introduction to Engineering Computing

Statistics course

STAT 1152 Introduction to Mathematical Statistics

Analysis; choose one of the following courses

ECON 1150 Econometrics
STAT 1221 Applied Regression

Time Sequence; choose one of the following courses

STAT 1321 Applied Time Series
STAT 1731 Stochastic Processes
STAT 1741 Applied Probability

Finance; choose one of the following courses

BUSFIN 1311 Corporate Finance
ECON 1440 Economics of Corporation Finance

Additional requirements

Statistics, Economics, and Finance

Requirements for this major include three credits of statistics and six to nine credits of economics and finance courses. Majors must complete a total of 12 credits in one of these subjects.

Grade requirements

A minimum grade of C is necessary in all courses required for the major.

Satisfactory/No Credit option

No course that counts toward the major can be taken on an S/NC basis.

Declaring the major

Before declaring this major, students must complete MATH 0230 or MATH 0235 (Analytic Geometry and Calculus 2) or their equivalents, with a letter grade of C or better. Students must also complete MATH 0470 Actuarial Mathematics 1 with a letter grade of B- or better to declare this major.

Advising

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Checklist for the Actuarial Mathematics major

Prerequisites; both of the following courses

_____ MATH 0220
_____ MATH 0230

Basic Calculus; choose one of the following courses

_____ MATH 0240
_____ MATH 0245

Analysis; choose one of the following courses

_____ MATH 0413 (4 credits)
_____ MATH 0450 (4 credits)

Linear Algebra; choose one of the following courses

_____ MATH 1180 (3 credits)
_____ MATH 1185 (3 credits)

Differential Equations; choose one of the following courses

_____ MATH 1270 _____ MATH 1275

Actuarial Mathematics; all of the following courses

_____ MATH 0470 _____ MATH 1123
_____ MATH 1119 _____ MATH 1124
_____ MATH 1121 _____ MATH 1125
_____ MATH 1122 _____ MATH 1126

Applied Mathematics; choose two of the following courses

_____ MATH 1100 _____ MATH 1470
_____ MATH 1110 _____ MATH 1530
_____ MATH 1280 _____ MATH 1540
_____ MATH 1360 _____ MATH 1550

Numerical Methods; choose one of the following courses

_____ MATH 1070 _____ MATH 1127
_____ MATH 1080

Economics; both of the following courses

_____ ECON 1100
_____ ECON 1110

Computer Programming; one of the following courses

_____ CS 0004
_____ CS 0007
_____ CS 0008
_____ CS 0401
_____ STAT 1301
_____ BUSMIS 1060
_____ ENGR 0012

Statistics

_____ STAT 1152

Analysis; one of the following courses

_____ ECON 1150
_____ STAT 1221

Time Sequence; one of the following courses

_____ STAT 1321
_____ STAT 1731
_____ STAT 1741

Finance; one of the following courses

_____ BUSFIN 1311
_____ ECON 1440

Sample Four Year Program

Year 1

Fall	Spring	
MATH 0220 (4 cr)		MATH 0230 (4 cr)
CS 0401 (3 cr)		MATH 0470 (3 cr)
General Education (6 cr)		General Education (9 cr)

Year 2

Fall	Spring	
MATH 0240 (4 cr)		MATH 1121 (3 cr)
MATH 0413 (4 cr)		MATH 1180 (3 cr)
STAT 1152 (3 cr)		STAT 1221 (3 cr)
General Education (3 cr)		General Education (6 cr)

Year 3 or 4

Fall	Spring	
MATH 1122 (3cr)		STAT 1321 (3 cr)
MATH 1270 (3 cr)		MATH 1123 (3 cr)
General Education (9 cr)		BUSFIN 1311 (3 cr)
		General Education (9 cr)

Year 4 or 3

Fall	Spring	
ECON 1100 (3 cr)		ECON 1110 (3 cr)
STAT 1321 (3 cr)		General Education (12 cr)
General Education (9 cr)		