

Actuarial Mathematics Major

www.mathematics.pitt.edu

Revised: 08/2009

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 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.

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

Basic Calculus

All of the following

MATH 0220 Analytic Geometry and Calculus 1
MATH 0230 Analytic Geometry and Calculus 2
MATH 0240 Analytic Geometry and Calculus 3

Analysis

One of the following

MATH 0413 Introduction to Theoretical Mathematics
MATH 0450 Introduction to Analysis

Linear Algebra

One of the following

MATH 1180 Linear Algebra
MATH 1185 Honors Linear Algebra

Actuarial Mathematics

Both of the following

MATH 1120 Actuarial Mathematics 1
MATH 1121 Actuarial Mathematics 2

Differential Equations

MATH 1270 Ordinary Differential Equations 1

Numerical Methods

One of the following

MATH 1070 Numerical Mathematical Analysis
MATH 1080 Numerical Linear Algebra

Applied Mathematics

Two of the following

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 1480 Partial Differential Equations 2

Economics

All of the following

ECON 1100 Intermediate Microeconomic Theory
ECON 1110 Intermediate Macroeconomic Theory
ECON 1150 Applied Econometrics

Computer Programming

One of the following

CS 0007 Introduction to Computer Programming
CS 0132 Programming in C and Guide to UNIX
ENGR 0012 Introduction to Engineering Computing

Statistics

Both of the following

STAT 1151 Introduction to Probability
STAT 1152 Introduction to Mathematical Statistics

One of the following

STAT 1321 Applied Time Series
STAT 1731 Stochastic Processes

Finance

One of the following

BUSFIN 1311 Corporate Finance
ECON 1440 Economics of Corporation Finance

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

Declaring the major: Before declaring this major, students must complete MATH 0220 and MATH 0230 (Analytic Geometry and Calculus 1 and 2) or their equivalents, with a letter grade of C or better.

Related area: The required courses include nine credits of statistics courses and nine to 12 credits of economics courses. Majors can fulfill the related area requirement by taking an additional statistics or economics course to achieve a total of 12 credits in one of these subjects.

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Checklist for the Actuarial Mathematics major

All of the following

_____ MATH 0220 (4 credits)
_____ MATH 0230 (4 credits)
_____ MATH 0240 (4 credits)
_____ MATH 1120 (3 credits)
_____ MATH 1121 (3 credits)
_____ MATH 1270 (3 credits)

_____ ECON 1100 (3 credits)
_____ ECON 1110 (3 credits)
_____ ECON 1150 (3 credits)

_____ STAT 1151 (3 credits)
_____ STAT 1152 (3 credits)

One of the following

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

One of the following

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

One of the following

_____ MATH 1070 (3 credits)
_____ MATH 1080 (3 credits)

Two of the following

_____ MATH 1110 (3 credits, W-course)
_____ MATH 1280 (3 credits)
_____ MATH 1360 (3 credits)
_____ MATH 1470 (3 credits)
_____ MATH 1480 (3 credits)

One of the following

_____ CS 0007 (3 credits)
_____ CS 0132 (3 credits)
_____ ENGR 0012 (3 credits)

One of the following

_____ STAT 1321 (3 credits)
_____ STAT 1731 (3 credits)

One of the following

_____ BUSFIN 1311 (3 credits)
_____ ECON 1440 (3 credits)