Course Catalog

Mathematical Finance

Faculty

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Overview

The Mathematical Finance major is an interdisciplinary study of financial markets. Increasingly, firms of all types, and financial institutions in particular, rely on sophisticated mathematical models to understand financial markets, to evaluate financial instruments, and to measure and manage risk. To understand and utilize these models, students need specific capabilities that can be only gained from study in the fields of economics, finance, and mathematics. The major is specifically designed for students considering graduate studies and careers in Finance, Applied Financial Economics, Mathematical Finance, Applied Mathematics, or Actuarial Science.

Requirements

The Major

The requirements for the degree of Bachelor of Science with a major in Mathematical Finance are as follows:

1. Required Courses

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>ACCT 1301</td>
<td>Fundamentals of Financial Accounting</td>
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<tr>
<td>FNCE 3301</td>
<td>Corporate Finance</td>
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<tr>
<td>ECON 1311</td>
<td>Principles of Microeconomics</td>
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<tr>
<td>ECON 1312</td>
<td>Principles of Macroeconomics</td>
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ECON 3325 Intermediate Microeconomics  
ECON 4367 Advanced Microeconomic Theory  
ECON 4370 Econometrics  
MATH 1311 Calculus I  
MATH 1312 Calculus II  
MATH 2321 Calculus III  
MATH 1320 or BAT 2301 Statistical Methods or Statistics for Business and Economics*  
MATH 3370 Financial Mathematics  
MATH 3316 Differential Equations and Linear Algebra  
*MATH 3334 Probability, may be substituted for MATH 1320/BAT 2301. That substitution is essential for those seeking a career in actuarial science.

2. Three Additional Elective Courses from the following:

- FNCE 3351/ECON 3356 Financial Institutions and Markets
- FNCE 3352 Investments I
- FNCE 3353 Investments II
- FNCE 3363 Student Managed Fund I
- FNCE 3361/ECON 3361 International Finance
- FNCE 3362 Equity Valuation
- FNCE 4362 Derivatives

3. Completion of all other required elements of the Pathways curriculum and at least 120 credit hours.

For full admission into the major, students must have credit for Calculus II (MATH 1312), Financial Accounting (ACCT 1301) and Principles of Macroeconomics (ECON 1312) with a grade of at least a C in each. Students who have not yet completed those three classes may still declare the major but are “provisionally accepted.”

Courses

MFIN-3-71 Internship

Internships may be arranged with businesses, nonprofit institutions, and government agencies. The job must include analysis based on tools learned in the course of completing the MFIN major. The workload requirements
are expected to be similar to those of typical MFIN courses carrying the same number of hours of credit. Must be taken pass/fail. Prerequisites: ACCT 1301, ECON 1312, MATH 1312 and permission of the program chair.