M.S. in Mathematical and Computational Finance

Degree Requirements

Master of Science in Mathematical and Computational Finance

The Master of Science in Mathematical and Computational Finance requires 33 credits: 27 credits in core courses, 3 credits in an approved elective, and 3 credits in a project course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Semester I</td>
<td></td>
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</tr>
<tr>
<td>FIN 641</td>
<td>Derivatives Markets</td>
<td>3</td>
</tr>
<tr>
<td>MATH 605</td>
<td>Stochastic Calculus</td>
<td>3</td>
</tr>
<tr>
<td>MATH 611</td>
<td>Numerical Methods for Computation</td>
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<tr>
<td>MATH 646</td>
<td>Time Series Analysis</td>
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<tr>
<td>Semester II</td>
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<tr>
<td>MATH 604</td>
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<tr>
<td>MATH 606</td>
<td>Term Structure Models</td>
<td>3</td>
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<tr>
<td>MATH 608</td>
<td>Partial Differential Equations for Finance</td>
<td>3</td>
</tr>
<tr>
<td>CS 666 or MATH 666</td>
<td>Simulation for Finance</td>
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<tr>
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<tr>
<td>Semester III</td>
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<tr>
<td>MATH 607</td>
<td>Credit Risk Models</td>
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<tr>
<td>Approved Elective</td>
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<tr>
<td>MATH 609</td>
<td>Projects in Mathematical and Computational Finance</td>
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<td></td>
<td>Term Credits</td>
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<td>Total Credits</td>
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For students having already successfully completed the equivalent of a course required for the program, more advanced courses can be substituted with departmental approval.

Electives

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>CS 505</td>
<td>Programming, Data Structures, and Algorithms</td>
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<tr>
<td>CS 602</td>
<td>Java Programming</td>
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<tr>
<td>CS 610</td>
<td>Data Structures and Algorithms</td>
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</tr>
<tr>
<td>CS 611</td>
<td>Introduction to Computability and Complexity</td>
<td>3</td>
</tr>
<tr>
<td>CS 631</td>
<td>Data Management System Design</td>
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</tr>
<tr>
<td>CS 632</td>
<td>Advanced Database System Design</td>
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<td>CS 634</td>
<td>Data Mining</td>
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<td>CS 675</td>
<td>Machine Learning</td>
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<td>EM 602</td>
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<td>FIN 624</td>
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<td>FIN 626</td>
<td>Financial Investment Institutions</td>
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<tr>
<td>FIN 650</td>
<td>Investment Analysis and Portfolio Theory</td>
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<td>MATH 644</td>
<td>Regression Analysis Methods</td>
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<tr>
<td>MATH 647</td>
<td>Time Series Analysis II</td>
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<td>MATH 659</td>
<td>Survival Analysis</td>
<td>3</td>
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<tr>
<td>MATH 662</td>
<td>Probability Distributions</td>
<td>3</td>
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<tr>
<td>MATH 665</td>
<td>Statistical Inference</td>
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<tr>
<td>MATH 691</td>
<td>Stochastic Processes with Applications</td>
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<tr>
<td>MATH 699</td>
<td>Design and Analysis of Experiments</td>
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</table>
Electives are chosen in consultation with the Program Director and consist of advanced courses in mathematics, statistics, probability, computer science, and management (The list above is a partial list of available courses).

**Master of Science in Mathematical and Computational Finance - Applied Quantitative Finance Option**

*(this option does not have electives)*

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</tr>
<tr>
<td>PTC 601</td>
<td>Advanced Professional and Technical Communication</td>
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<td>MGMT 641</td>
<td>Global Project Management</td>
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