

Catalog of Postgraduate Programs and Curricula

Curriculum for MSc(MATH-FMS) (For students admitted in 2010-11)

Program Requirements for Master of Science (MSc) Program in Mathematics (Financial Mathematics and Statistics)

Credits

To complete **30 credits**, including:

- 6 credits of foundation courses;
- 9 credits of financial mathematics courses;
- 9 credits of statistics courses; and
- 6 credits of free electives and/or MAFS 610 *Independent Project*

Courses

1. Foundation courses (6 credits):

| | | |
|------|-----|--|
| MATH | 531 | <i>Advanced Numerical Methods I</i> |
| MATH | 541 | <i>Advanced Probability Theory I</i> |
| MATH | 551 | <i>Mathematical Methods in Science and Engineering I</i> |
| MAFS | 501 | <i>Stochastic calculus</i> |
| MAFS | 502 | <i>Advanced Probability and Statistics</i> |

2. Financial Mathematics courses (9 credits):

| | | |
|------|-----|---|
| MAFS | 503 | <i>Quantitative Modeling of Derivatives Securities</i> |
| MAFS | 504 | <i>Quantitative Methods for Fixed-income Instruments</i> |
| MAFS | 521 | <i>Mathematical Models of Investment</i> |
| MAFS | 523 | <i>Advanced Credit Risk Models</i> |
| MAFS | 524 | <i>Software Development with C++ for Quantitative Finance</i> |
| MAFS | 525 | <i>Computational Methods for Pricing Structural Products</i> |
| MAFS | 601 | <i>Special Topics in Financial Mathematics</i> |

3. Statistics courses (9 credits):

| | | |
|------|-----|--|
| MATH | 542 | <i>Advanced Probability Theory II</i> |
| MATH | 543 | <i>Advanced Mathematical Statistics I</i> |
| MATH | 544 | <i>Advanced Mathematical Statistics II</i> |
| MATH | 545 | <i>Stochastic Processes</i> |
| MATH | 546 | <i>Time Series Analysis</i> |
| MAFS | 511 | <i>Advanced Data Analysis with Statistical Programming</i> |
| MAFS | 512 | <i>Applied Multivariate Analysis</i> |
| MAFS | 513 | <i>Quantitative Analysis of Financial Time Series</i> |
| MAFS | 522 | <i>Quantitative and Statistical Risk Analysis</i> |

4. Free Electives and/or Independent Project (6 credits):

Any mathematics course at 300-level or above, or any any course outside the Department at 500-level or above.

MAFS 610* *Independent Project*

** Number of credits earned from an independent project can be 3 to 6 credits.*

Credit Transfer

All credit transfer must be approved by the Program Director and is subject to University regulations governing credit transfer.