

FINANCIAL MATHEMATICS, MASTER OF SCIENCE IN ENGINEERING

The department offers an M.S.E. degree in Financial Mathematics. The structure of this program is summarized below. More detailed information about this program may be found on the department's website.

Full-time students in this program are expected to attend courses for three semesters beginning in the fall semester, an internship after the spring semester of their first year, and return for a second fall semester.

Program Requirements

For departmental certification for this degree, the student must complete the following courses or approved substitute courses with program approval pursuing either the Area of Focus Track or Legacy Track:

Area of Focus Track

- Financial Mathematics Master's Seminar
- Computing requirement (Financial Computing Workshop)
- Communication skills requirement (Communication Skills Practicum)
- Internship (typically done during summer after first year in residence)
- Complete training on the responsible and ethical conduct of research. Please see the WSE Policy on the Responsible Conduct of Research.
- Complete training on academic ethics.

Code	Title	Credits
Core Financial Mathematics Requirement		
EN.553.644	Introduction to Financial Derivatives	4
EN.553.645	Interest Rate and Credit Derivatives	4
Core Applied Mathematics Requirement		
EN.553.613	Applied Statistics and Data Analysis	4
EN.553.627	Stochastic Processes and Applications to Finance	4
EN.553.639	Time Series Analysis	3
Electives ¹		
Select seven elective courses ²		21
Total Credits		40

¹ Please see department website for approved electives.

² One course in Applied Mathematics and Statistics, two courses in Financial Mathematics and four additional courses from the approved electives listing or with prior program approval.

Legacy Track

- Financial Mathematics Master's Seminar
- Computing requirement (Financial Computing Workshop)
- Communication skills requirement (Communication Skills Practicum)
- Internship (typically done during summer after first year in residence)
- Complete training on the responsible and ethical conduct of research. Please see WSE Policy on the Responsible Conduct of Research.
- Complete training on academic ethics.

Code	Title	Credits
Core Financial Mathematics Requirement		
EN.553.642	Investment Science	4
EN.553.644	Introduction to Financial Derivatives	4
EN.553.645	Interest Rate and Credit Derivatives	4
EN.553.646	Risk Measurement/Management in Financial Markets	4
Core Applied Mathematics Requirement		
EN.553.627	Stochastic Processes and Applications to Finance	4
EN.553.633	Monte Carlo Methods	4
EN.553.613	Applied Statistics and Data Analysis	4
EN.553.639	Time Series Analysis	3
EN.553.661	Optimization in Finance	4
Electives ¹		
Select three elective courses ²		
Total Credits		35

¹ Please see department website for approved electives.

² One course in Applied Mathematics and Statistics, one course in Financial Mathematics and one additional course with prior program approval.

For courses used toward the degree, all grades must be C or higher, at most two grades can be below a B-, and the overall average grade point average in these courses must be at least 3.0.