

Financial Mathematics (MR)

Master of Financial Mathematics Degree Requirements

Code	Title	Hours	Counts towards
Core Courses			26
FIM/ECG/MA/ MBA 528			
ST 501	Fundamentals of Statistical Inference I		
ISE 711	Capital Investment Economic Analysis		
FIM 500	Career Development for Quants		
MA 547	Stochastic Calculus for Finance		
ST 502	Fundamentals of Statistical Inference II		
MA/FIM 548	Monte Carlo Methods for Financial Math		
FIM 601	Seminar in Financial Mathematics ¹		
ECG 766	Computational Methods in Economics and Finance		
Summer Internship/Project Course			1
Select one summer semester requirement of the following:			
FIM 650	Internship in Financial Mathematics		
FIM 675	Project in Financial Mathematics		
Elective Courses			9
See "Elective Courses" listed below			
Total Hours			36

¹ Students need to take FIM 601 (1 credit) in their second and third semesters for a total of 2 credits

Elective Courses

Code	Title	Hours	Counts towards
Select at least three courses listed below:			9
Risk Management Track			
FIM/MA 549	Financial Risk Analysis	3	
ISE 519	Database Applications in Industrial and Systems Engineering	3	
MBA 518	Enterprise Risk Management	3	
MBA 521	Advanced Corporate Finance	3	
Data Science for Finance Track			
ISE 519	Database Applications in Industrial and Systems Engineering	3	
ST 503	Fundamentals of Linear Models and Regression	3	
ST 516	Experimental Statistics For Engineers II	3	
ST 540	Applied Bayesian Analysis	3	
ST 590	Special Topics (Applied Time Series)	1-6	
ST 562	Data Mining with SAS Enterprise Miner	3	
ST 555	Statistical Programming I	3	
Portfolio Management Track			
OR/MA 504	Introduction to Mathematical Programming	3	
OR/ISE 505	Linear Programming	3	
OR 506	Algorithmic Methods in Nonlinear Programming	3	
MBA 523	Investment Theory and Practice	3	
MBA 524	Equity Valuation	3	

MA 531	Dynamic Systems and Multivariable Control I	3	CSC 522	Automated Learning and Data Analysis	3
ISE 519	Database Applications in Industrial and Systems Engineering	3	CSC 540	Database Management concepts and Systems	3
Actuarial Science Track			CSC 541	Advanced Data Structures	3
ECG 701	Microeconomics I	3	CSC/MA 580	Numerical Analysis I	3
ECG 702	Microeconomics II	3	CSC/MA 583	Introduction to Parallel Computing	3
ECG/ST 750	Introduction to Econometric Methods	3	ISE 712	Bayesian Decision Analysis For Engineers and Managers	3
ECG/ST 751	Econometric Methods	3	MBA 515	Enterprise Resource Planning Systems	3
ECG/ST 752	Time Series Econometrics	3	MBA 526	International Finance	3
ECG/ST 753	Microeconometrics	3	MA 515	Analysis I	3
MA/ST 747	Probability and Stochastic Processes II	3	MA 520	Linear Algebra	3
MBA 518	Enterprise Risk Management	3	MA 532	Ordinary Differential Equations I	3
PhD Preparation Track			MA 534	Introduction To Partial Differential Equations	3
OR/ISE 505	Linear Programming	3	MA 544	Computer Experiments In Mathematical Probability	3
ECG/ST 751	Econometric Methods	3	MA 555	Introduction to Manifold Theory	3
ECG/ST 752	Time Series Econometrics	3	MA/BMA 573	Mathematical Modeling of Physical and Biological Processes I	3
MA 523	Linear Transformations and Matrix Theory	3	MA/BMA 574	Mathematical Modeling of Physical and Biological Processes II	3
MA 540	Uncertainty Quantification for Physical and Biological Models	3	MA 584	Numerical Solution of Partial Differential Equations-- Finite Difference Methods	3
MA/ST 546	Probability and Stochastic Processes I	3			
ST 730		3			
ST 740	Bayesian Inference and Analysis	3			
MA 791	Special Topics In Real Analysis (Functional Analysis)	1-6			
Other					
CSC 505	Design and Analysis Of Algorithms	3			

MA 587	Numerical Solution of Partial Differential Equations--Finite Element Method	3
MA 715	Measure Theory and Integration	3
MA 723	Theory of Matrices and Applications	3
MA/ST 746	Introduction To Stochastic Processes	3
MA/ST 748	Stochastic Differential Equations	3
OR/ISE 501	Introduction to Operations Research	3
OR/MA 504	Introduction to Mathematical Programming	3
OR/E/MA 531	Dynamic Systems and Multivariable Control I	3
OR/MA 719	Vector Space Methods in System Optimization	3
OR/ISE 772	Stochastic Simulation Design and Analysis	3
OR/BMA/MA/ST 773	Stochastic Modeling	3
ST 505	Applied Nonparametric Statistics	3
ST 512	Statistical Methods For Researchers II	3
ST 556	Statistical Programming II	3
ST 563	Introduction to Statistical Learning	3

Accelerated Bachelor's/Master's Degree Requirements

The Accelerated Bachelors/Master's (ABM) degree program allows exceptional undergraduate students at NC State an opportunity to complete the requirements for both the Bachelor's and Master's degrees at an accelerated pace. These undergraduate students may double count up to 12 credits and obtain a non-thesis Master's degree in the same field within 12 months of completing the Bachelor's degree, or obtain a thesis-

based Master's degree in the same field within 18 months of completing the Bachelor's degree.

This degree program also provides an opportunity for the Directors of Graduate Programs (DGPs) at NC State to recruit rising juniors in their major to their graduate programs. However, permission to pursue an ABM degree program does not guarantee admission to the Graduate School. Admission is contingent on meeting eligibility requirements at the time of entering the graduate program.

Full Professors

David Dickey

Paul Fackler

Sujit Ghosh

Kazufumi Ito

Negash Medhin

Tao Pang

Tom Vukina

Mark Walker

Richard Warr

Associate Professors

Min Kang

Denis Pelletier

Charlie Smith

Assistant Professors

Ilze Kalnina

Yerkin Kitapbayev

Practice/Research/Teaching Professors

Wei Chen

Richard Ellson

Jeffrey High

Ram Valluru

Emeritus Faculty

Richard Bernhard

Peter Bloomfield

Jeffrey Scroggs

John Seater

Jim Wilson