

MS in Financial Engineering

- [For additional program information see the Weissman School website](#)

The Baruch College Financial Engineering MS Program is a professional Masters Program which graduates competitive, high-quality individuals who successfully pursue careers in quantitative finance.

The Master of Science in Financial Engineering (MFE) requires the completion of 36 credits, including 12 credits to be completed from required courses and 24 credits to be completed from elective courses. Students entering the program with exceptional mathematical or financial skills may be permitted to replace one or more of the required courses with additional electives.

The curriculum of the MFE Program is designed to provide students with the background required for modeling and solving problems that arise in the financial services industry across various markets and asset classes. All courses are offered in the evening to accommodate students with work commitments.

Program Learning Goals

Upon completion of the MS in Financial Engineering, students will be able to:

1. Exhibit broad and deep knowledge of financial markets and instruments.
2. Apply mathematical models to the study of financial instruments across markets.
3. Demonstrate excellent presentation and communication skills.
4. Display high proficiency in C++ and VBA programming for financial applications.
5. Quantify and estimate the risk associated with financial instruments.
6. Develop pricing tools that interface with financial data providers such as Bloomberg and Reuters.
7. Implement numerical methods for pricing and hedging financial instruments in various financial markets.

Program Curriculum

Courses in Specialization (36 credits)		
Required Courses (12 credits)		
MTH 9814	Financial Markets and Securities	1.5 credits
MTH 9815	Object Oriented Programming for Financial Applications	1.5 credits
MTH 9821	Numerical Methods for Finance I	3 credits
MTH 9831	Probability and Stochastic Processes for Finance I	3 credits
MTH 9903	Capstone Project and Presentation	3 credits
Elective Courses (24 credits)		
Choose courses from the following courses:		
MTH 9760	Big Data Technologies	3 credits
MTH 9796	Statistical Natural Language Processing	1.5 credits
MTH 9797	Advanced Data Analysis	1.5 credits
MTH 9816	Fundamentals of Trading	1.5 credits
MTH 9841	Statistics for Finance	3 credits

MTH 9842	Optimization Techniques in Finance	1.5 credits
MTH 9845	Market and Credit Risk Management	3 credits
MTH 9848	Elements of Structured Finance	3 credits
MTH 9852	Numerical Methods for Finance II	3 credits
MTH 9855	Asset Allocation and Portfolio Management	3 credits
MTH 9862	Probability and Stochastic Processes for Finance II	3 credits
MTH 9863	Volatility Filtering and Estimation	1.5 credits
MTH 9864	Model Review for Quantitative Models in Finance	1.5 credits
MTH 9865	Commodities and Futures Trading	1.5 credits
MTH 9866	Modeling and Market Making in Foreign Exchange	1.5 credits
MTH 9867	Time Series Analysis and Algorithmic Trading	3 credits
MTH 9868	Advanced Risk and Portfolio Management	3 credits
MTH 9871	Advanced Computational Methods in Finance	3 credits
MTH 9873	Interest Rate Models and Interest Rate Derivatives	3 credits
MTH 9875	The Volatility Surface	3 credits
MTH 9876	Credit Risk Models	3 credits
MTH 9877	Interest Rate and Credit Models	3 credits
MTH 9878	Interest Rate Models	3 credits
MTH 9879	Market Microstructure Models	3 credits
MTH 9881	Current Topics in Mathematical Finance	3 credits
MTH 9882	Fixed Income Risk Management	1.5 credits
MTH 9883	Structured Security Valuation in the Primary Market	1.5 credits
MTH 9886	Emerging Markets and Inflation Modeling	1.5 credits
MTH 9887	Blockchain Technologies in Finance	1.5 credits
MTH 9891	Introduction to Applied Financial Econometrics	1.5 credits
MTH 9893	Time Series Analysis	1.5 credits
MTH 9894	Machine Learning	1.5 credits
MTH 9896	Behavioral Finance	1.5 credits
MTH 9897	Systematic Trading	1.5 credits
MTH 9898	Data Science in Finance I: Big Data in Finance	1.5 credits

MTH 9899	Data Science in Finance II: Machine Learning	1.5 credits
ECO 82100	(Term I) Econometrics I	3 credits
ECO 82100	(Term II) Financial Econometrics	3 credits
FIN 9770	Financial Markets and Institutions	3 credits
FIN 9782	Futures and Forward Markets	3 credits
FIN 9783	Investment Analysis	3 credits
FIN 9786	International Financial Markets	3 credits
FIN 9790	Seminar in Finance	3 credits
FIN 9793	Advanced Investment Analysis	3 credits
FIN 9797	Options Markets	3 credits
STA 9700	Modern Regression Analysis	3 credits
STA 9701	Time Series: Forecasting and Statistical Modeling	3 credits