

# 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

<b>Courses in Specialization</b> (36 credits)		
Required Courses (12 credits)		
<a href="#">MTH 9814</a>	Financial Markets and Securities	1.5 credits
<a href="#">MTH 9815</a>	Object Oriented Programming for Financial Applications	1.5 credits
<a href="#">MTH 9821</a>	Numerical Methods for Finance I	3 credits
<a href="#">MTH 9831</a>	Probability and Stochastic Processes for Finance I	3 credits
<a href="#">MTH 9903</a>	Capstone Project and Presentation	3 credits
<b>Elective Courses</b> (24 credits)		
Choose courses from the following courses:		
<a href="#">MTH 9760</a>	Big Data Technologies	3 credits
<a href="#">MTH 9796</a>	Statistical Natural Language Processing	1.5 credits
<a href="#">MTH 9797</a>	Advanced Data Analysis	1.5 credits
<a href="#">MTH 9816</a>	Fundamentals of Trading	1.5 credits
<a href="#">MTH 9841</a>	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 <i>effective spring 2023 course credit changes to: 1.5 credits</i>
MTH 9872	Current Topics in Data Science for Financial Engineering Applications	1.5 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 9888	Decentralized Finance	1.5 credits
MTH 9889	Data Science III: Deep Learning	1.5 credits
MTH 9890	Fintech for Quants	1.5 credits
MTH 9891	Introduction to Applied Financial Econometrics	1.5 credits

<a href="#">MTH 9892</a>	Cryptocurrencies and Their Derivatives	1.5 credits
<a href="#">MTH 9893</a>	Time Series Analysis	1.5 credits
<a href="#">MTH 9894</a>	Machine Learning	1.5 credits
<a href="#">MTH 9896</a>	Behavioral Finance	1.5 credits
<a href="#">MTH 9897</a>	Systematic Trading	1.5 credits
<a href="#">MTH 9898</a>	Data Science in Finance I: Big Data in Finance	1.5 credits
<a href="#">MTH 9899</a>	Data Science in Finance II: Machine Learning	1.5 credits
<a href="#">ECO 82100</a>	(Term I) Econometrics I	3 credits
<a href="#">ECO 82100</a>	(Term II) Financial Econometrics	3 credits
<a href="#">FIN 9770</a>	Financial Markets and Institutions	3 credits
<a href="#">FIN 9782</a>	Futures and Forward Markets	3 credits
<a href="#">FIN 9783</a>	Investment Analysis	3 credits
<a href="#">FIN 9786</a>	International Financial Markets	3 credits
<a href="#">FIN 9790</a>	Seminar in Finance	3 credits
<a href="#">FIN 9793</a>	Advanced Investment Analysis	3 credits
<a href="#">FIN 9797</a>	Options Markets	3 credits
<a href="#">STA 9700</a>	Modern Regression Analysis	3 credits
<a href="#">STA 9701</a>	Time Series: Forecasting and Statistical Modeling	3 credits