

Quantitative Finance, BS (Boston)

This interdisciplinary program is designed for students with both a strong interest in the financial industry and in the areas of mathematical modeling and computational programming. Building on a strong core of foundational courses, advanced analytical work in finance, mathematics, and computer programming focuses on the financial strategies and computational technologies that prepare students for careers in the rapidly changing financial industry, including fintech, risk management, quantitative portfolio management, machine learning, and financial modeling.

Program Requirements

Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

Universitywide Requirements

All undergraduate students are required to complete the Universitywide Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/>).

NUpath Requirements

All undergraduate students are required to complete the NUpath Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/general-education-requirements/#nupathtext>).

Business Requirements

Code	Title	Hours
Accounting		
ACCT 1201	Financial Accounting and Reporting	4
Finance		
FINA 2201	Financial Management	4
Marketing		
MKTG 2201	Introduction to Marketing	4
Organizational Behavior		
ORGB 3201	Organizational Behavior	4
or ORGB 3203	Behavioral Aspects of Digital Transformation	
International Business/Social Responsibility		
INTB 1203	International Business and Global Social Responsibility	4
Quantitative Finance		
FINA 3301	Corporate Finance	4
or FINA 3303	Investments	
FINA 3740	Fundamentals of Financial Math and Financial Markets	4
FINA 3750	Discrete-Time Quantitative Finance	4
FINA 4512	Financial Risk Management	4
Strategy in Action		
STRT 4501	Strategy in Action	4

Mathematics Requirements

Code	Title	Hours
Required Math Core Courses		
MATH 1341	Calculus 1 for Science and Engineering	4
MATH 1342	Calculus 2 for Science and Engineering	4
MATH 2321	Calculus 3 for Science and Engineering	4
MATH 2341	Differential Equations and Linear Algebra for Engineering	4
MATH 3081	Probability and Statistics	4
MATH 4581	Statistics and Stochastic Processes	4

Computer Science/Data Science Requirements

Code	Title	Hours
CS 2000 and CS 2001	Introduction to Program Design and Implementation and Lab for CS 2000	5

CS 2100 and CS 2101	Program Design and Implementation 1 and Lab for CS 2100	5
DS 3000	Mathematical Foundations of Artificial Intelligence	4
DS 3500	Advanced Programming with Data	4

Restricted Electives

Code	Title	Hours
Complete six courses from the following (at least three must be FINA courses):		24
ACCT 3402	Financial Reporting and Financial Statement Analysis	
CS 1800	Discrete Structures	
CS 2700 and CS 2701	Data Structures and Analysis and Lab for CS 2700	
CS 3000	Algorithms and Data	
CS 3100 and CS 3101	Program Design and Implementation 2 and Lab for CS 3100	
CS 3200	Introduction to Databases	
CS 3520	Programming in C++	
CS 4100	Principles of Artificial Intelligence	
CS 4220	Information Retrieval	
DS 4200	Information Presentation and Visualization	
DS 4300	Large-Scale Information Storage and Retrieval	
DS 4400	Machine Learning	
DS 4420	Advanced Machine Learning	
DS 4440	Modern Neural Networks	
FINA 3301	Corporate Finance (if not used as a required course)	
FINA 3303	Investments (If not used as a required course)	
FINA 4219	Portfolio Management	
FINA 4335	Computational Methods and Their Applications in Finance	
FINA 4350	Applied Financial Econometrics and Data Modeling	
FINA 4390	Machine Learning in Finance	
FINA 4460	Algorithmic and Robo-Trading	
FINA 4604	Fixed-Income Securities	
MATH 3150	Real Analysis	
MATH 3181	Advanced Probability and Statistics	
MATH 3535	Numerical Methods with Applications to Differential Equations	
MATH 4570	Matrix Methods in Data Analysis and Machine Learning	

Supporting Courses

Code	Title	Hours
Introduction to College		
BUSN 1102	Personal Skill Development for Business	
Co-op Preparation		
BUSN 1103	Professional Development for Business Co-op	
Economics		
ECON 1115	Principles of Macroeconomics	4
ECON 1116	Principles of Microeconomics	4
Writing Requirement		
ENGW 1111	First-Year Writing	4
or ENGW 1102	First-Year Writing for Multilingual Writers	
or ENGW 1114	First-Year Writing with Service-Learning	
ENGW 3304	Advanced Writing in the Business Administration Professions	4
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

Business Experiential Learning

Code	Title	Hours
Complete at least one of the following:		0-8
BUSN 4945	Experiential Professional Practicum	
COOP 3945	Co-op Work Experience	
COOP 3946	Co-op Work Experience–Half Time	
COOP 3947	Co-op Work Experience Abroad–Half Time	
COOP 3948	Co-op Work Experience Abroad	
EEBA 2945	Internship Experience	
EEBA 2948	Internship Experience Abroad	

NUpath Requirements

The following NUpath requirements are met by the major:

- Analyzing and Using Data (AD)
- Conducting Formal and Quantitative Reasoning (FQ)
- Demonstrating Thought and Action in a Capstone (CE)
- Employing Ethical Reasoning (ER)
- Engaging with the Natural and Designed World (ND)
- Interpreting Culture (IC)
- Understanding Societies and Institutions (SI)

Other NUpath requirements may be fulfilled by electives in the program.

General Electives

Complete remaining semester hours to meet minimum by taking general electives.

Business GPA Requirement

Minimum 2.000 GPA required in business courses

Program Requirement

128 total semester hours required