



COURSE SEQUENCE ADVICE FOR PART TIME STUDENTS

Mathematics in Finance MS students must complete 36 total credits selected from the Mathematics in Finance curriculum. Which also includes the Project and Presentation course associated with their Masters Project. The required courses are: Financial Securities and Markets, Stochastic Calculus, Computing in Finance, Scientific Computing in Finance, Dynamic Asset Pricing, Machine Learning & Computational Statistics, Data Science and Data-Driven Modeling and Risk and Portfolio Management.

Part-time students must plan carefully, since many courses have prerequisites. With approval of the leadership of the program students may substitute equivalent knowledge for a course prerequisite. In particular, those who have professional experience building financial systems applications do not require Computing in Finance.

In choosing what courses to take, consider your background and what courses are prerequisites for other courses. Students with a lot of software experience often petition to omit Computing in Finance; those with a lot of economics background often seek waivers of Risk and Portfolio Management.

Part-time students may take Project and Presentation either in the fall or spring semesters. While this course has no formal prerequisites, a student must have done enough coursework to provide sufficient background for a substantial project. Approval from Professor Kolm is required concerning the project topic and advisor.

In planning your curriculum, it may be useful to work backward. For example, Nonlinear Problems in Finance: Models and Computational Methods requires Dynamic Asset Pricing. Before taking Dynamic Asset Pricing, you need both Stochastic Calculus and Financial Securities and Markets. To provide some flexibility, we offer some classes in both the Fall and Spring semesters. Please refer to our website for a complete list of all our courses.

The following table is intended to help each student plan a course sequence that is consistent with all prerequisites. First, we list the Math Finance courses, indicating their dependencies. Then we offer two examples of feasible course sequences.

Required Courses (Total of 6 Courses + Project & Presentation)

Courses Offered Fall Semester		Courses Offered Spring Semester
Level 1	1. Financial Securities and Markets 2. Risk and Portfolio Management 3. Stochastic Calculus 4. Computing in Finance	1. Financial Securities and Markets 2. Risk and Portfolio Management 3. Stochastic Calculus
Level 2	5. Scientific Computing 6. Continuous Time Finance (Only Offered in Fall of 2020) 7. Project & Presentation	5. Scientific Computing in Finance 6. Project & Presentation

Electives (Choose 5 Courses)

Courses Offered Fall Semester	Courses Offered Spring Semester
A. Advanced Statistical Inference and Machine Learning B. Alternative Data in Quantitative Finance C. Data Science in Quantitative Finance D. Fixed Income Derivatives: Models & Strategies in Practice E. Nonlinear Problems in Finance: Models and Computational Methods F. Time Series Analysis & Statistical Arbitrage G. Trends in Sell-Side Modeling: XVA, Capital and Credit Derivatives	A. Active Portfolio Management B. Advanced Risk Management C. Advanced Topics in Equity Derivatives D. Algorithmic Trading and Quantitative Strategies E. Interest Rates & FX Models F. Market Microstructure G. Advanced Risk Management H. Modeling and Risk Management of Bonds and Securitized Products I. Trading Energy Derivatives

SAMPLE COURSE SEQUENCES (Assuming a Fall Start)

<i>This sequence omits Computing in Finance</i>
(Fall) Financial Securities and Markets & Stochastic Calculus
(Spring) Risk and Portfolio Management & Scientific Computing
(Fall) Dynamic Asset Pricing & Fixed Income Derivatives: Models & Strategies in Practice & Credit Analytics: Bonds, Loans, and Derivatives
(Spring) Advanced Risk Management & Interest Rate and FX Models
(Fall) Nonlinear Problems in Finance: Models and Computation Methods & Time Series Analysis and Statistical Arbitrage
(Spring) Advanced Risk Management & Project and Presentation

<i>This sequence omits Risk and Portfolio Management</i>
(Fall) Financial Securities and Markets & Computing in Finance
(Spring) Scientific Computing & Stochastic Calculus
(Fall) Dynamic Asset Pricing & Time Series Analysis and Statistical Arbitrage
(Spring) Interest Rate and FX Models & Advanced Risk Management
(Fall) Nonlinear Problems in Finance: Models and Computational Methods & Regulation and Regulatory Risk Models
(Spring) Algorithmic Trading and Quantitative Strategies & Project and Presentation