

Fin 83000: Capital Markets and Portfolio  
Theory  
Syllabus—Spring 2026

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Zicklin School of Business  
Baruch College

**Class Meetings**

Class meets on Wednesdays 1:30-3:30pm from January 28 to May 13 in room 10-215.

First Class: January 28, 2026

No class on April 1 and April 8

**Office Hours**

Mondays from 2:30-3:30pm or by appointment, Office: 10-265

**Course Description**

Fin 83000 is an introduction to the foundations of modern financial economics. The focus throughout will be on the development and interpretation of discrete-time models of asset pricing and capital markets. The course is primarily theoretical.

This course is intended for Ph.D. students in finance and economics. While there are no formal prerequisites for enrolling in this course, a working

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knowledge of calculus, linear algebra, and probability+statistics is especially useful.

The course grade will be based on the following: regular homework assignments (30%); a midterm exam (30%); and a final exam (40%).

Homework will be assigned most every week, and will usually be due one week after it is assigned. Students are encouraged to discuss the homework problems with other students, but should work through all of the mathematics individually, and all students must turn in separate assignments.

The main textbooks for the course are

- K. Back. *Asset Pricing and Portfolio Choice Theory*. Financial Management Association Survey and Synthesis Series. Oxford University Press, 2010
- T. Foucault, M. Pagano, and A. Röell. *Market Liquidity—Theory, Evidence, and Policy*. Oxford University Press, 2023
- X. Vives. *Information and Learning in Markets—The Impact of Market Microstructure*. Princeton University Press, 2008
- C.-f. Huang and R. H. Litzenberger. *Foundations for financial economics*. North-Holland, 1988

Below is a list of topics to be covered. I reserve the right to change the syllabus (modestly) as the course progresses. Under each topic I summarize relevant reading and provide a number of classic references. Students are required to read the textbook readings and to read articles marked with an asterisk. Students who are serious about research should also read some additional articles. I will generally provide lecture notes summarizing key points made in class.

**Honor Code:** All students are expected to adhere to the University’s Code of Academic Integrity, which is designed to ensure that the principles of academic honesty and integrity are upheld. The Zicklin School does not tolerate academic dishonesty. All acts of academic dishonesty will be dealt with in accordance with the provisions of this code. Please visit the following website for more information on the University’s Code of Academic Integrity: <https://studentaffairs.baruch.cuny.edu/dean-of-students/academic-integrity/>

**Special Needs:** Any student with special needs should bring this to the attention of the instructor as soon as possible, but not later than the second week of class.

**Brightspace:** I will be posting homework assignments, class notes, and some class readings on Brightspace. Students can login to Brightspace by going to

<https://brightspace.cuny.edu/>

## Week 1: Utility Theory

**Topics** Preference ordering, utility maximization, axioms, expected utility, risk aversion.

### Readings

- Ingersoll (1987), chapter 1.
- Back (2010), chapter 1.
- Huang and Litzenberger (1988), chapter 1.
- \*M. J. Machina. Expected utility analysis without the independence axiom. *Econometrica*, 50(2):277–324, March 1982
- M. J. Machina. Choice under uncertainty: Problems solved and unsolved. *The Journal of Economic Perspectives*, 1(1):pp. 121–154, 1987
- J. W. Pratt. Risk aversion in the small and in the large. *Econometrica*, 32(1):122–136, April 1964
- \*M. Rabin. Risk aversion and expected-utility theory: A calibration theorem. *Econometrica*, 68(5):1281–1292, 2000

## Week 2: The Fundamental Theorem

**Topics** Notation, Definitions, Proof of Fundamental Theorem.

**Readings**

- Ingersoll (1987), chapter 2.
- \*J. Eatwell, M. Milgate, and P. K. Newman. *Finance: The New Palgrave*. W.W. Norton & Co Inc, 1987, “Arbitrage,” pp. 57-71.
- S. A. Ross. A simple approach to the valuation of risky streams. *The Journal of Business*, 51(3):pp. 453–475, 1978b

**Week 3: The Portfolio Choice Problem and Comparative Statics**

**Topics** Finish Fundamental Theorem, portfolio choice, comparative statics, complete markets.

**Readings**

- Huang and Litzenberger (1988), 1.16 to 1.29.
- \*P. H. Dybvig and S. A. Ross. Portfolio efficient sets. *Econometrica*, 50(6): 1525–1546, 1982.
- P. C. Fishburn and R. B. Porter. Optimal portfolios with one safe and one risky asset: Effects of changes in rate of return and risk. *Management Science*, 22(10):pp. 1064–1073, 1976
- P. A. Samuelson. General proof that diversification pays. *The Journal of Financial and Quantitative Analysis*, 2(1):pp. 1–13, 1967

**Week 4: Definition of Risk and Stochastic Dominance**

**Topics** Definition of Risk, Risk Aversion and Stochastic Dominance

**Readings**

- Ingersoll (1987), pages 114-124
- Huang and Litzenberger (1988), chapter 2
- M. M. Ali. Stochastic dominance and portfolio analysis. *Journal of Financial Economics*, 2(2):205 – 229, 1975

- H. Levy. The definition of risk: An extension. *Journal of Economic Theory*, 14(1):232 – 234, 1977
- \*M. Rothschild and J. E. Stiglitz. Increasing risk: I. a definition. *Journal of Economic Theory*, 2(3):225 – 243, 1970
- P. H. Dybvig and Y. Wang. Increases in risk aversion and the distribution of portfolio payoffs. *Journal of Economic Theory*, 147(3):1222 – 1246, 2012

## Week 5: Mean-Variance Analysis, Two Fund Separation and the CAPM

**Topics** Mean-variance analysis, the efficient frontier and its properties, two fund separation, the capital asset pricing model, normally distributed returns

### Readings

- Ingersoll (1987), chapter 4 (required)
- Copeland and Weston (1988), chapter 6, 7 (optional)
- Back (2010), chapters 5-6.
- R. C. Merton. An analytic derivation of the efficient portfolio frontier. *The Journal of Financial and Quantitative Analysis*, 7(4):pp. 1851–1872, 1972
- G. Chamberlain. A characterization of the distributions that imply mean-variance utility functions. *Journal of Economic Theory*, 29(1):185 – 201, 1983a
- H. Markowitz. Portfolio selection. *The Journal of Finance*, 7(1):pp. 77–91, 1952
- S. A. Ross. Mutual fund separation in financial theory: “the separating distributions”. *Journal of Economic Theory*, 17(2):254 – 286, 1978a
- W. F. Sharpe. Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance*, 19(3):pp. 425–442, 1964

## Week 6: Arbitrage Pricing Theorem and the General Fund Separation

**Topics** The Arbitrage Pricing Theorem, Pareto optimal allocations, representative agents, and generalized fund separation

**Readings**

- Ingersoll (1987), chapters 7,8
- Copeland and Weston (1988), chapter 5
- Back (2010), chapter 6.
- \*G. Huberman. A simple approach to arbitrage pricing theory. *Journal of Economic Theory*, 28(1):183–191, 1982
- G. Chamberlain. Funds, factors, and diversification in arbitrage pricing models. *Econometrica*, 51(5):pp. 1305–1323, 1983b
- S. A. Ross. The arbitrage theory of capital asset pricing. *Journal of Economic Theory*, 13(3):341 – 360, 1976a
- \*G. Connor. A unified beta pricing theory. *Journal of Economic Theory*, 34(1):13 – 31, 1984

**Week 7: Complete Markets, State-Preference Theory and the Pricing of Contingent Claims**

**Topics** State preference theory, discrete option pricing.

**Readings**

- Huang and Litzenberger (1988), chapter 5, sections 1-15.
- Back (2010), chapters 2-3.
- \*J. C. Cox, S. A. Ross, and M. Rubinstein. Option pricing: A simplified approach. *Journal of Financial Economics*, 7(3):229 – 263, 1979
- P. Dybvig and J. Ingersoll Jr. Mean-variance theory in complete markets. *Journal of Business*, pages 233–251, 1982
- J. Hirshleifer. Investment decision under uncertainty: Applications of the state-preference approach. *The Quarterly Journal of Economics*, 80(2):252–277, 1966
- S. C. Myers. A time-state-preference model of security valuation. *The Journal of Financial and Quantitative Analysis*, 3(1):pp. 1–33, 1968

- D. Cass and J. E. Stiglitz. The structure of investor preferences and asset returns, and separability in portfolio allocation: A contribution to the pure theory of mutual funds. *Journal of Economic Theory*, 2(2):122–160, 1970
- \*D. T. Breeden and R. H. Litzenberger. Prices of state-contingent claims implicit in option prices. *The Journal of Business*, 51(4):pp. 621–651, 1978
- S. A. Ross. Options and efficiency. *The Quarterly Journal of Economics*, 90(1):pp. 75–89, 1976b
- N. H. Hakansson. Welfare aspects of options and supershares. *The Journal of Finance*, 33(3):pp. 759–776, 1978

## Week 8: Option Pricing, Black Scholes, and Discrete Dynamic Models

**Topics** Equilibrium asset pricing models, Lucas tree economies, Black-Scholes model.

### Readings

- Back (2010), chapter 4, 7-9, 15-17.
- \*J. Lucas, Robert E. Asset prices in an exchange economy. *Econometrica*, 46(6):1429–1445, 1978
- S. F. LeRoy. Risk aversion and the martingale property of stock prices. *International Economic Review*, 14(2):436–446, 1973
- \*M. Rubinstein. The valuation of uncertain income streams and the pricing of options. *The Bell Journal of Economics*, 7(2):pp. 407–425, 1976
- F. Black and M. Scholes. The pricing of options and corporate liabilities. *Journal of Political Economy*, 81(3):pp. 637–654, 1973

## Week 9: Dynamic Information and Kalman Filtering

**Topics** Conditional expectations of normally distributed random variables, Kalman Filtering

**Readings**

- Back (2010), chapter 8.
- \*A. S. Kyle. Informed speculation with imperfect competition. *The Review of Economic Studies*, 56(3):317–355, 1989
- \*J. Y. Campbell and A. S. Kyle. Smart money, noise trading and stock price behaviour. *The Review of Economic Studies*, 60(1):1–34, 1993

**Week 10: Rational Expectations Models**

**Topics** No-trade theorems, rational expectations models.

**Readings**

- S. J. Grossman and J. E. Stiglitz. Information and competitive price systems. *The American Economic Review*, 66(2):246–253, 1976
- P. Milgrom and N. Stokey. Information, trade and common knowledge. *Journal of Economic Theory*, 26(1):17–27, 1982
- \*S. J. Grossman and J. E. Stiglitz. On the impossibility of informationally efficient markets. *The American Economic Review*, 70(3):393–408, 1980
- S. J. Grossman. An introduction to the theory of rational expectations under asymmetric information. *The Review of Economic Studies*, 48(4):541–559, 1981
- M. Hellwig. On the aggregation of information in competitive markets. *Journal of Economic Theory*, 22(3):477–498, 1980

**Week 11: Imperfectly Competitive Models**

**Topics** Market microstructure, trading with imperfect competition.

**Readings**

- \*A. S. Kyle. Continuous auctions and insider trading. *Econometrica*, 53(6):1315–1335, 1985
- A. S. Kyle. Informed speculation with imperfect competition. *The Review of Economic Studies*, 56(3):317–355, 1989

- A. S. Kyle, A. A. Obizhaeva, and Y. Wang. Smooth Trading with Overconfidence and Market Power. *The Review of Economic Studies*, 85:611–662, 2018

## **Week 12: Market Making with Asymmetric Information**

**Topics** Market microstructure, market making models.

### **Readings**

- L. R. Glosten and R. Milgrom, Paul. Bid, ask and transaction prices in a specialist market with heterogeneously informed traders\* 1. *Journal of financial economics*, 14(1):71–100, 1985
- H. Liu and Y. Wang. Market Making with Asymmetric Information and Inventory Risk. *Journal of Economic Theory*, 163:73–109, 2016
- W. Chen and Y. Wang. Dynamic Market Making with Asymmetric Information and Market Power. *Review of Financial Studies*, 38:235–293, 2025

## **Week 13: Market Efficiency and Return Predictability**

**Topics** Market efficiency, agreement to disagree, behavioral finance.

### **Readings**

- Back (2010), chapter 18.
- N. Barberis and R. Thaler. Chapter 18 a survey of behavioral finance. In M. H. G.M. Constantinides and R. Stulz, editors, *Financial Markets and Asset Pricing*, volume 1, Part B of *Handbook of the Economics of Finance*, pages 1053 – 1128. Elsevier, 2003
- \*E. F. Fama. Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2):383–417, 1970
- E. F. Fama. Efficient capital markets: Ii. *The Journal of Finance*, 46(5): 1575–1617, 1991

- \*J. M. Harrison and D. M. Kreps. Speculative investor behavior in a stock market with heterogeneous expectations. *The Quarterly Journal of Economics*, 92(2):323–336, 1978
- \*F. Black. Estimating expected return. *Financial Analysts Journal*, 51(1):168–171, 1995
- N. Jegadeesh and S. Titman. Profitability of momentum strategies: An evaluation of alternative explanations. *The Journal of Finance*, 56(2):699–720, 2001
- N. Jegadeesh and S. Titman. Overreaction, delayed reaction, and contrarian profits. *The Review of Financial Studies*, 8(4):973–993, 1995
- A. S. Kyle, A. A. Obizhaeva, and Y. Wang. Beliefs Aggregation and Return Predictability. *Journal of Finance*, 78:427–486, 2023

## Week 14: Algorithmic Trading

**Topics** Algorithmic Trading and Market Quality

### Readings

- E. Budish, P. Cramton, and J. Shim. The High-Frequency Trading Arms Race: Frequent Batch Auctions as a Market Design Response. *The Quarterly Journal of Economics*, 130:1547–1621, 2015
- S. Lovo, J.-E. Colliard, and T. Foucault. Algorithmic Pricing and Liquidity in Securities Markets. 2025
- W. Dou, I. Goldstein, and Y. Ji. AI-Powered Trading, Algorithmic Collusion, and Price Efficiency. 2025