

Financial Economics

Econ 4250

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Term: Spring 2025
Time: TR 1:45-3:14 pm
Location: FAGN 110

Syllabus

This is a preliminary version of the syllabus, and I will be updating it as we progress.

Coverage: This course is designed to introduce students to key topics in financial economics: the fundamentals of modern financial analysis, instruments and institutions, corporate investment and financing decisions, the theory of portfolio choice and theories of asset pricing. Along the way, students will be introduced to economics of uncertainty and statistical decision theory. We will explore both the older risk neutral models of valuation as well the more modern risk/arbitrage based theories. We will cover the central elements of corporate finance as well as some of the key financial aspects of public and international finance, as well as cryptocurrencies and their associated financial assets.

Textbooks: The course has one required text and several recommended texts that students can consult for more information:. The recommended texts are available both in the library and through second hand book sellers like Abebooks.

Required Text;

Cole, Harold L. Finance and Financial Intermediation. Oxford University Press, 2019. (HC)

Lecture Notes:

Some special lecture notes that I have written up (HCL)
These are my personal notes and should not be shared outside of the class

Recommended Additional Texts:

Luenberger, David G. Investment science. Oxford university press, 1998. (DL)

Bodie, Zvie, and Robert Merton, Finance Third Edition, Pearson, 2011. (MB)

Additional Readings:

We will also use a variety of readings including newspaper articles.

Grading:

There will be two Midterms and the Final Examination. In addition there will be several homework assignments. We will count your highest midterm exam 40%, the final exam 45%, and the homeworks 15%.

Math Requirements:

The technical level of the course is fairly rigorous; roughly similar to the prerequisite Intermediate Macroeconomics. We make extensive use of optimization, calculus, first-order conditions and probability theory. For that reason, I always start with a math review, as well as review any math we use right before doing so.

Course Outline:

1. Structure of Asset Markets; HC 1,2, MB 1,2
 - (a) Money (short-term) and capital (long-term) markets
 - (b) Primary vs. secondary markets
 - (c) Forward and future contracts
 - (d) Derivatives and options
 - (e) Competitive markets, over-the-counter markets, and auction markets
 - (f) Readings
 - i. FRED, special reading NYTimes,
 - ii. WSJ "Era of Low Rates Ended ..."
 - iii. WSJ "Stocks Cap Best Two Years ..."
 - iv. WSJ "Xi Digs in ..."
2. Math Review; HC 18
 - (a) Calculus,
 - (b) Optimization
 - (c) Probability
 - (d) Statistics
3. Risk Neutral Asset Pricing; HC 3,4, DL 9
 - (a) Risk neutral asset pricing and the present-value budget constraint
 - (b) Bubbles and the efficient markets hypothesis, NF 3

- (c) Yield curves and nominal vs. real interest rates.
 - (d) asset pricing with growth
 - (e) Price-earnings ratios
4. Price Dynamics; HLC, DL 11
- (a) Random walk vs. geometric r.w.
 - (b) central limit theorem and the binomial
 - (c) the binomial lattice model
 - (d) log-normal vs. Black Swan vs. fat tail
5. Theory Review- Economics of Uncertainty; HLC, DL 9
- (a) Accounting for risk, pricing lotteries and expected utility
 - (b) Risk aversion and precautionary motives to save
6. Portfolio Theory; DL 6
- (a) risk-return tradeoff
 - (b) optimal portfolio
 - (c) Sharpe ratio
 - (d) savings for retirement -
reading Jagannathan and Kocvherrlakota MPLS QR 1996
7. Problems with the Risk Neutral Model; HC 5, 10
- (a) Nominal Rates vs. Real
 - (b) Exchange Rates, Interest Parity, Forward rate premium puzzle
 - (c) Risk premia
 - (d) Predictability in returns and variances
 - (e) Including money and liquidity
 - (f) Consumption based asset pricing
8. Asset Pricing III; HC 5,6
- (a) Sharpe ratio, and estimating the market price of risk
 - (b) No Arbitrage based risk-averse asset pricing model
9. Options and Derivatives; HC 7, DL 12
- (a) Using options to hedge risk
 - (b) Simple version of Black-Scholes option pricing methodology

10. New payment systems and crypto; HC 11

- (a) new payments
- (b) crypto
- (c) encryption
- (d) Fintech

11. Capital Structure of the Firm

- (a) Determining the firm objective: maximizing stock value
- (b) Optimal investment and hiring decision under uncertainty
- (c) Modigliani/Miller Theorem
- (d) Overcoming the MM Theorem with bankruptcy costs and taxes
- (e) Estimating the cost of capital to the firm

12. Leverage, Collateral and Securitization

- (a) The structure of the mortgage market
- (b) Pricing mortgages
- (c) Collateralized debt contracts and their pricing
- (d) Asset-backed securities (ABS) and tranching

13. Public Debt

- (a) The structure of public debt markets
- (b) Auction theory

14. Financial Regulation