

Finance Theory: ECON 870

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This course covers the theory of a competitive economy under uncertainty, asset pricing, optimal portfolio decision-making and the basic elements of corporate finance without frictions. In particular the course will consider the CAPM, Arbitrage pricing and the APT, the Consumption CAPM, Martingale pricing theory, elementary stochastic interest rate models with and without default risk, and basic Derivative pricing theory in discrete time.

We will introduce the ideas underlying convergence from discrete time to continuous time financial modeling.

We will discuss the Efficient Markets Hypothesis and surrounding confusions.

There will be a brief introduction to asset pricing with illiquid asset markets; and why standard asset pricing models have no role for intermediaries – they are redundant.

I will post interesting and relevant academic and media articles on the course website as the term progresses.

There will be weekly exercise sheets that will prepare you for the Midterm and Final Examinations.

Assessment:

Midterm 50%, Final 50%

Texts:

J-P. Danthine and J.D.Donaldson, *Intermediate Financial Theory*, (third edition), Academic Press, 2015.

Frank Milne *Finance Theory and Asset Pricing*, (second edition) Oxford University Press 2003.

Advanced References:

Other more advanced references that may be used in class or consulted on specific topics.

Mas-Colell, Whinston and Green, *Microeconomic Theory*, OUP, 1995.

H.Varian, *Microeconomic Analysis*, Norton, 1992, third edition.

J.Y. Campbell, *Financial Decisions and Markets*, Princeton University Press, 2018.

N.Bingham and R.Keisel, *Risk-Neutral Valuation*, Springer, 1998

R.Jarrow and S.Turnbull, *Derivative Securities*, South Western, 2000, second edition.

R. Jarrow, *Modelling Fixed Interest Securities*, Stanford, 2002 second edition.

S.Shreve, *Stochastic Calculus for Finance 1: The Binomial Asset Pricing Model*, Springer, 2004.

Topics:

A. Introduction:

1. A Brief History of Finance Theory and Introduction to the Theory:

Milne Ch. 1.

DD Ch.1.

2. Basic General Equilibrium Theory and Asset Pricing Theory:

DD Ch.1 Appendix; Ch.2

(A)Varian Chs.17, 18.

(A) Mas-Colell Ch.10.

B. Review of Expected Utility and Risk Aversion:

3. Expected Utility theory and Risk Aversion:

DD Ch. 3,4

(A)Mas-Colell et al, Ch,6 Sections 6.A-E

4. Risk Aversion and Investment Decisions:

DD 5.

C. Basic Portfolio Theory and CAPM:

5. Portfolio Theory:

DD Chs. 6, 7.

6. CAPM:

DD Ch. 8.

D. Arrow- Debreu Pricing and General Equilibrium Asset Pricing in a Single Period Model:

5 Arrow Debreu Pricing:

DD Ch 9.

Milne Ch.2

6 Incomplete Markets with Production and the Modigliani-Miller Theorem:

DD Ch 17.

Milne Ch 3.

7 Arbitrage and Asset Pricing: Induced Preferences:

Milne Ch 4.

8. Arbitrage Asset Pricing: Martingale Pricing:

Milne Ch.5.

9. Representative Consumers

Milne Ch 6.

10. Diversification and Asset Pricing:

Milne Ch. 7.

DD Ch. 14.

E. Arrow- Debreu Pricing and General Equilibrium Asset Pricing in a Multi-Period Model:

11. Options and Arrow Debreu Complete Markets:

DD Ch.11.

Milne Ch. 8.

12. Martingale Measures in Discrete Time with Applications

DD Ch. 12,13

Milne Chs. 9,10.

Shreve (for a thorough discussion of the binomial model in all its variations.)

(A) Bingham and Kiesel, Ch.4.

13. Stochastic Interest rate models:

R.Jarrow and S.Turnbull, Chs.15.

(A) R. Jarrow, *Modelling Fixed Interest Securities*.

14. The Jarrow-Turnbull Credit Risk model:

R.Jarrow and S.Turnbull, Chs.18.

(A) R. Jarrow, *Modelling Fixed Interest Securities*.

15. The Multiperiod Consumption Capital Asset Pricing Model (CCAPM), Representative Agent and the Equity Premium Puzzle:

DD Ch. 10.

https://en.wikipedia.org/wiki/Equity_premium_puzzle

16. The Efficient Markets Hypothesis and Intro to Behavioural Finance:

Malkiel, "The Efficient Market Hypothesis and Its Critics", *Journal of Economic Perspectives*, Winter 2003.

Shiller, "From Efficient Markets Theory to Behavioral Finance", *Journal of Economic Perspectives*, Winter 2003.

Shiller, "Speculative Asset Prices", Nobel Prize Speech, 2014.

17. From Discrete to Continuous Time Finance: An Introduction to the Discrete and Continuous Dynamic Factor Model:

R.Jarrow and S.Turnbull, Chs.4, 5.

DD Ch.15.

Milne Ch.14.

(A) Hua He "Convergence from Discrete- to Continuous-Time Contingent Claims Prices", *The Review of Financial Studies*, Vol. 3, No. 4. (1990), pp. 523-546.

F. Liquid and Illiquid Markets and Intermediation:

18. Asset Pricing Models with Liquidity Problems:

Milne Ch.18.

Y. Amihud, H.Mendelson and L.Pedersen, “Liquidity and Asset Prices”, **Foundations and Trends in Finance**, Vol 1, No.4, 2005, 269-364.

V.Acharya and L.Pedersen, “Asset Pricing with Liquidity Risk”, *Journal of Financial Economics*, 2005, 77, 375-410.

Pedersen, “When Everyone runs for the Exits” *International Journal of Central Banking*, pp 177-199, 2009.

19. Financial Intermediation – Missing Theory in Asset Pricing:

Freixas and Rochet, *Microeconomics of Banking*. MIT Press (Second Edition) 2008.
Chapter 1.