Finance Theory: ECON 870/MGMT820

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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 basic ideas underlying convergence from discrete time to continuous time financial modeling.

There will be a brief introduction to asset pricing with illiquid asset markets. 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:

Advanced References:
Other more advanced references that may be used in class or consulted on specific topics.
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) and the Equity Premium Puzzle:
DD Ch. 10.

16. From Discrete to Continuous Time Finance: an Introduction:
R.Jarrow and S.Turnbull, Chs.4, 5.
DD Ch.15.
Milne Ch.14.

F. Liquid and Illiquid Markets:

17. Asset Pricing Models with Liquidity Problems:
Milne Ch.18.