FINA 790E Spring 2009
Theory of Finance

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Office hours: before/after class, or Tue 13:30 – 15:30, or by appointment.
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Classes:

Wednesday 3PM–6PM, Room 5504 (HKUST)

Course Objectives: The course is intended for Finance and Economics PhD students who would like to obtain a solid theoretical preparation in Financial Economics. Please note that the class is demanding; if you do not plan to devote at least 30% of your time to prepare, consider waiting until it is offered next year.
I will cover Theory of choice under uncertainty, static and some of intertemporal portfolio theory, market equilibrium and asymmetric information.

Prerequisites: The best preparation may be obtained from the graduate (PhD level) courses in microeconomics and statistics. Both prerequisites may be taken concurrently. It is essential that you have some background in calculus and probability theory. You should know how to solve constrained optimization problems, take derivatives with respect to matrices and vectors, and solve systems of equations.

1. **Required Text:** (HL) Huang, Chi-fu, and Robert H. Litzenberger, *Foundations for Financial Economics*, North-Holland, 1988. (classical book on Finance Theory) **This book is out of print – available on the reserve in the library**
2. **Recommended Text** Pennacchi, George, *Theory of Asset Pricing*, Pearson Education, 2008. This book is a new treatment of Asset Pricing, it is available in the bookstore and on-line.

Additional, as needed:

3. Stephen F. LeRoy and Jan Werner, Principles of Financial Economics, Cambridge University Press, 2001.
4. Cochrane, John H., *Asset Pricing* (Revised edition), Princeton University Press, 2005. Accessible and comprehensive text on Asset Pricing with an emphasis on testing the theory

5. Ingersoll, Jr., Jonathan E., *Theory of Financial Decision Making*, Rowman & Littlefield, 1987

Classical textbook that is close in spirit to (HL), but it requires the knowledge of stochastic calculus to read some chapters.

6. Duffie, Darrell, *Dynamic Asset Pricing Theory*, Princeton University Press, 1992

Popular text on Asset Pricing

Grading Policy: Your grade will be calculated as follows:

Problem Sets. 50%
Critique of the article: 10%
Final Exam: 40%
Class Participation: will count on the margin.

Problem Sets: There will be several problem sets assigned. The problem sets have to be done individually, you can talk to each other and to me if you have a difficulty. Please submit problem sets on time. **I will not count one problem set with the lowest grade for the calculation of total.**

Critique of the article: In the second half of the class I will assign one paper to each registered student. You will prepare the summary and critique of the paper (3 pages max) that ideally lays out the idea for writing a better paper. Please prepare a 15 minute presentation of your critique.

Final Exam: The exam is **closed book** and is based on the material given in the class and the problem sets. You can bring 1 A4 page with your notes and a calculator.

Administrative Information

Office hours: I will hold office hours as indicated above and by appointment. I will also be generally available after the class to answer your questions. Outside of these hours e-mail is the best option.

Auditing: Students may audit this class, please send me an email for permission.

Class Webpage: does not exist at the moment because many handouts are not available in the electronic form.

Attendance: Attending all classes is required. Given the small size of the class, registered students should inform me beforehand if they will be unable to attend and give the reason – we will consider rescheduling the lecture. Likewise, I will inform all attending students if I need to reschedule the lecture.

Approximate list of topics

I. Expected Utility Theory and Portfolio Decision Problem

Huang-Litzernberger Chapter 1
Pennacchi Chapter 1
LerRoy-Werner Chapter 8

Related papers: Pratt, John W., 1964, Risk aversion in the small and in the large, *Econometrica* 32, 122-136.

II. Generalized Risk and Asset Pricing

Huang-Litzernberger Chapter 2
LerRoy-Werner Chapter 9

Related papers: Rothschild, M. and J.E Stiglitz, 1970, Increasing risk I: A definition, *Journal of Economic Theory* 2, 225-43.

III. The Mean-Variance Frontier

Huang-Litzernberger Chapter 3
Pennacchi Chapter 2
Cochrane Chapter 5
LerRoy-Werner Chapter 18

Related papers: Markowitz, Harry, 1952, Portfolio selection, *Journal of Finance* 7, 77-91.

Merton, Robert C., 1972, An analytical derivation of the efficient portfolio frontier, *Journal of Financial and Quantitative Analysis* 7, 1851-1872.

IV. Market Equilibrium and the CAPM

Huang-Litzernberger Chapter 4
Pennacchi Chapter 3
LerRoy-Werner Chapter 19

Related papers:

Black, Fischer, 1972, Capital market equilibrium with restricted borrowing, *Journal of Business* 45, 444-455.

Fama, Eugene, 1971, Risk, return and equilibrium, *Journal of Political Economy*, 30-55.

Lintner, John, 1965, The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets, *Review of Economics and Statistics* 47, 13-37.

Mossin, Jan, 1966, Equilibrium in a capital asset market, *Econometrica* 34, 768-783.
Sharpe, William F., 1964, Capital asset prices: A theory of market equilibrium under conditions of risk, *Journal of Finance* 19, 425-442.

V. Linear Valuation and Factor Models

Huang-Litzernberger Chapter 4
Cochrane Chapter 9
LerRoy-Werner Chapter 20

Related papers:
Fama, Eugene and Kenneth R. French, 1993, Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics* 33, 3-56.
Fama, Eugene and Kenneth R. French, 1996, Multifactor explanations of asset-pricing anomalies, *Journal of Finance* 51, 55-84.
Ross, Stephen A., 1976, The arbitrage theory of capital-asset pricing, *Journal of Economic Theory* 13, 341-360.
Shanken, Jay, 1982, The arbitrage pricing theory: Is it testable? *Journal of Finance* 37, 1129-1140.

VI. State Preference Theory and Equilibrium under Complete Markets

Huang-Litzernberger Chapter 5
Pennacchi Chapter 4
LerRoy-Werner Chapter 14-15

Related papers:
Arrow, K., 1964, The role of securities in the optimal allocation of risk bearing, *Review of Economic Studies* 31, 91-96.
Breeden, D. and R. Litzenberger, 1978, Prices of state contingent claims implicit in option prices, *Journal of Business* 51, 621-52.

VII. Multiperiod valuation

Huang-Litzernberger Chapter 8
Pennacchi Chapter 5-6
LerRoy-Werner Chapter 21 - …

VIII. Asymmetric information

Huang-Litzernberger Chapter 9
Pennacchi Chapter 16

If you are into this topic, there are several (easy to digest) books that you may want to read:

Maureen O'Hara “**Market Microstructure Theory**” 1995

Markus Brunnermeier “Asset Pricing Under Asymmetric Information: Bubbles, Crashes, Technical ...” 2001