

Prof. Markus K. Brunnermeier ©

e-mail: markus@princeton.edu

<http://www.princeton.edu/~markus>

Office: 205 Dial Lodge

Office Hours: Th. 4:30 - 6:00

Princeton University

Econ 525: Financial Economics I

<http://courseinfo.princeton.edu>

Room B-06 Fisher Hall

Mo. & Wed., 4:15- 5:45 p.m.

Fall 2000

ECON 525: Financial Economics I

PRELIMINARY

Aim of the Course:

This course is the first of a sequence of two courses in Financial Economics. Professor José Scheinkman will teach *Financial Economics II* next spring term. His part will focus on continuous time finance and derivative pricing. The aim of *Financial Economics I* is to provide an introduction to asset pricing and portfolio theory. This term's course is divided into two parts. The first half of this course assumes that all market participants have the same information, while the second part focuses on models where different market participants have different information. Introducing asymmetric information allows us to explain stock market crashes, herding, bubbles and Keynes' Beauty contest comparison etc.

Structure of the Course:

PART I: ASSET PRICING UNDER SYMMETRIC INFORMATION

1. Some Background: Event Tree, Partitions, Filtrations, Probability Space
2. One period model
 - Market Completeness
 - No Arbitrage, Optimality and State Prices/Stochastic Discount Factor, Risk-neutral Evaluation
 - Geometric Interpretation/Illustration
 - Representative Agent Analysis in complete markets
3. Multi-period model
4. Portfolio Theory, Efficient Frontier and Beta-Pricing
5. Risk Preferences - Stochastic Dominance
 - Von Neumann-Morgenstern vs. Savage
 - Stochastic Dominance
6. Fund Separation and Aggregation: Utility and Distributional Restrictions
 - CAPM
 - Representative Agent Analysis in incomplete markets

PART II: ASSET PRICING UNDER ASYMMETRIC INFORMATION

1. Modeling Information
 - Partitions, Knowledge (Belief) Operators, Higher Order Uncertainty,
 - Conditional Distributions/Expectations, MLRP
2. Bayesian Nash Equilibrium vs. Rational Expectations Equilibrium
3. Allocative and Informational Efficiency
4. Information Revelation and Market Completeness
 - Dynamic completeness and incomplete equitization
 - Replicating Options with dynamic trading strategies
 - Informational Difference between traded securities and trading strategies
5. No-Trade Theorems
6. Bubbles
 - Growth bubbles
 - Information bubbles
7. Classification of Market Microstructure Models - Auctions
8. Technical Analysis in Dynamic Models
9. Endogenous Serial Correlation and the Infinite Regress Problem
10. Herding and Informational Cascades
11. Stock Market Crashes
12. Investigative Herding and Keynes' Beauty Contest
13. Firm's Short-termism
14. Bank Runs and Financial Crisis

Given the long list of topics, it is possible but not likely that we reach topic 14.

PART III: BEHAVIORAL FINANCE

1. Different Stock Market Anomalies
2. Overconfident Behavior and Cognitive Dissonance

Given the time constraints, I will only provide a flavor of behavioral finance.

Textbooks:

As outlined above, the course is divided in three parts. The *first part* covers the basic principles of asset pricing and portfolio theory. There are many books, which cover this part of the lecture. Each book has its strengths and weaknesses.

JC

Asset Pricing, John Cochrane,

You can download it for free from the web.

<http://www-gsb.uchicago.edu/fac/john.cochrane/research/Papers/finbook.pdf>

This manuscript is very illustrative and the lecture will be partly based on it.

- MQ** *Theory of Incomplete Markets*, Magill & Quinzii, MIT Press 1996
The focus of this book is on general equilibrium analysis than on finance. It provides a very good graphical illustration of the major results. Part of the lecture will be based on this book.
- HL** *Foundations for Financial Economics*, Huang & Litzenberger, Prentice Hall 1988
This book is the most popular standard text, but it is a little bit obsolete by now.
- JI** *Theory of Financial Decision Making*, John Ingersoll, Rowman & Littlefield 1987
This is a very well structured book and thus a good reference.
- DD** *Dynamic Asset Pricing Theory*, Darrell Duffie, Princeton University Press, 1996, second edition,
The first section(s) of this book coincides with the first part of the lecture. It provides a very concise overview. This book focuses on continuous time finance. Therefore, it also is a good investment for next term.
- CLM** *The Econometrics of Financial Markets*, Campbell, Lo & MacKinlay, Princeton University Press 1997
This is a great book in Financial Econometrics. It also provides some intuitive illustration of the theory.

The **second part** deals with asset pricing under asymmetric information. The lectures will be based on my forthcoming book.

- MB** *Asset Pricing under Asymmetric Information - Bubbles, Technical Analysis, Herding and Crashes*, Markus K. Brunnermeier, Oxford University Press, Dec. 2000
I will distribute a preliminary version of some chapters of this forthcoming book. These chapters won't cost you anything in dollar terms but they won't be free. I hope that you will study them very carefully and make many useful suggestions, catch typos etc.
- OH** *Market Microstructure Theory*, Maureen O'Hara, Blackwell 1995
Especially Chapter 6 is relevant for the course.

Some references for the behavioral finance:

- TH** *Advances in Behavioral Finance*, Richard H. Thaler, Russell Sage Foundation
- SH** *Inefficient Markets – An Introduction to Behavioral Finance* Andrei Shleifer, Oxford University Press, 2000

Prerequisites:

The course is designed for second year Ph.D. students of the Economics Department who want to specialize in Financial Economics. Thorough knowledge of game theory and general equilibrium theory as taught in the first year Microeconomics course is assumed. Undergraduate students and auditors may only register for the course after consultation with the instructor. ECO 412 "Financial Markets: Structure, Institutions and Regulations" offers a less technical alternative for undergraduate students in spring 2000.

Preceptor

David Skeie will be our preceptor for this course. His coordinates are:

David Skeie

B-10 Fisher Hall

e-mail: drskeie@princeton.edu

Tel. (609) 258-4052

Office hour: Wednesday 1:00 p.m. till 2:15 p.m. (or by appointment)

David will hold precepts after the problem sets are handed in and prior to the mid-term exam. David will schedule the precepts in the second week of the term.

Course Requirements:

Grades will be based on homework assignments (25 %), mid-term exam (35 %), and a final exam (40 %). One can also receive some bonus points. You can also "audit" this course if you plan to take the general exam in May 2001. However, I expect that you take part in the midterm exam and you submit all homework assignments with a grade better than C.

Homework Assignments

Homework assignments will differ in length and difficulty. Consequently their percentage grades carry different weight. Problem sets will be posted at the internet (<http://courseinfo.princeton.edu>). David Skeie will grade the problem sets and provide the solution in the precepts. I encourage you to work in groups of one to three people. A group should only submit a single solution. (Intellectual interaction with other Ph.D. students is crucial for becoming a good economist.) You can submit the problem sets up to 3 days late. You face a penalty of 50 % for each day you are late, i.e. one day late 50 % discount, two days late, 75 % discount. Please put them in David Skeie's mailbox before 2.00 p.m.

Midterm

Will be held on 20th of November (subject to change) in class.

Final exam

The final exam will be in form of a 'take home exam'. The final exam will test all topics of the course. It will also force you to build your own (small) model for a posted (general) question. The intention of the final is not only to test your understanding of the covered material but also to smooth the transition from coursework to actual research.

Honor Code

As mentioned above you can solve some problem sets in groups. However, group work is not allowed in exams!