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## ECO525/FIN595: Financial Economics I

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### Time and Location:

MW 1:10 pm-2:30 pm, Room 103, Bendheim Center for Finance (Dial Lodge)

### Aim of the Course:

This course is the first of a sequence of two courses in Financial Economics. 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 (taught by Professor Brunnermeier) introduces students to asset pricing in discrete time, covers models in which market participants can have different information and studies bubbles and liquidity crises. The second part (taught by Professor Scheinkman) emphasizes the consequences of the absence of arbitrage and continuous time equilibrium models. Professor Shin will teach *Financial Economics II*, which focuses on corporate finance, next spring.

### Structure of the Course:

#### **Part I: Asset Pricing in Discrete Time**

##### **1. Basics of Asset Pricing under Symmetric Information with Homogenous Beliefs**

- a) One-period Models [*DD1, LW3*]
  - Security structure and Market
  - LOOP, No Arbitrage
  - The three Pricing Formulas:  
Arrow-Debreu (State) Prices/Stochastic Discount Factor/Martingale Pricing
  - Optimality, Representative Agent Analysis
- b) State-price Beta Model
- c) Mean Variance Analysis, Beta-Pricing, CAPM [*LW17-19*]
- d) Factor Pricing Models (APT, FF) [*LW20*] (optional)
- e) Multi-period Models [*LW21-28*]
  - Conditional versus Unconditional Betas
  - Dynamic Market Completeness
  - Risk Neutral Valuation
  - Hedging Demand

## 2. Asset Pricing under Asymmetric Information

- a) Allocative and Informational Efficiency [B1]
- b) Existence of EMM
- c) Market Microstructure Models [B3]
  - Rational Expectations Equilibrium versus Bayesian Nash Equilibrium Concept
  - Insider Trading Models and Sequential Trade Models
- d) Higher Order Uncertainty, No-Trade Theorems [B1] (optional)

## 3. Introducing Heterogeneous Beliefs

- a) Representative Agent Analysis
- b) Existence of EMM

## 4. Bubbles and Limits to Arbitrage

- a) Noise trader risk
- b) Synchronization Risk

## 5. Liquidity and Risk Management (optional)

- a) LTCM case and Predatory Trading
- b) Funding Liquidity versus Market Liquidity

## Part II: Asset Pricing in Continuous Time and Stochastic Calculus

The structure of the second part of the course will be announced later in the semester.

Given the time constraints, we cannot guarantee that all topic will be covered.

### Textbooks:

The main textbooks are

**DD**     *Dynamic Asset Pricing Theory*, Darrell Duffie, Princeton University Press, 2001, third edition,

**LW**     *Principles of Financial Economics*, Stephen F. LeRoy and Jan Werner, Cambridge University Press, 2001.

**B**        *Asset Pricing under Asymmetric Information - Bubbles, Technical Analysis, Herding and Crashes*, Markus K. Brunnermeier, Oxford University Press, Jan. 2001

**KS**     *Brownian Motion and Stochastic Calculus*, Iannis Karatzas & Steven Shreve, Springer Verlag 1991, second edition

Other useful reference books are

**JC**     *Asset Pricing*, John Cochrane, Princeton University Press, 2001

**BL**     *Probability and Measure*, Patrick Billingsley Wiley, 1995, third edition

**JI**     *Martingale Methods in Financial Modelling*, Marek Musiela & Marek Rutkowski, Springer Verlag 1998

**OH**     *Market Microstructure Theory*, Maureen O'Hara, Blackwell 1995  
Especially Chapter 6 is relevant for the course.

Some references for the behavioral finance:

**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 instructors.

**Preceptor:**

For additional questions about the course material, please contact:

Glen Weyl

Office: Dial Lodge 003F

e-mail: eweyl@princeton.edu

Office hours: by appointment

Glen will go over the homeworks on Tuesday afternoons. It would be helpful to send him e-mail prior to the precept indicating which issues should be covered in more detail. Glen will also hold some review sessions before the exams.

**Course Requirements:**

Grades will be based on the mid-term exam (50 %), and a final exam (50 %). One can also receive some bonus points.

*Homework Assignments*

Homework assignments will differ in length and difficulty. Problem sets will be posted at the internet. We 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.)

*Midterm*

Will be held on October 25<sup>th</sup> in class. The midterm will cover the first part of the course.

*Final exam*

Will be held on December 13<sup>th</sup> in class. The final exam will cover the second part of the course.

**Honor Code**

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