Survey of Finance Theory I

Basic Information

Course number: 26:390:571 Section 1
Meeting times / location: Wednesdays 1:00-3:50PM 1WP-464
Instructor: Yichuan Liu
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Course Overview

This course introduces students to basic concepts and fundamental theories in financial economics with a particular emphasis on asset pricing. The course content is based on the neoclassical framework and follows the core concepts and major developments of modern finance: starting with expected utility theory and Arrow-Debreu pricing, followed by the static consumption-portfolio problem, eventually leading to no-arbitrage and general equilibrium models. While theory is the main focus, there will also be discussions of empirical methods and evidence whenever they are relevant. All of the models will be covered in a static discrete-time framework to keep the mathematics simple while retaining important intuitions.

Prerequisites

- Knowledge of the following is helpful but not essential:
  - Calculus and linear algebra: e.g., matrix notation, matrix algebra, derivative and integration.
  - Some statistics and econometrics: e.g., probabilities, regression.
  - Basic finance

Textbooks

The lecture notes are the most important reference material for exam purposes. The following are recommended (but not required) textbooks:

- *Asset Pricing* by John Cochrane (Princetown University Press)
  Revised edition (2005)

- *Asset Pricing and Portfolio Choice Theory* by Kerry Back (Oxford University Press)
  First edition (2010)

Course Material

- All up-to-date course materials, including announcements, lecture notes and solutions, can be found on BLACKBOARD.

- Practice problems will be posted from time to time. They are for review purposes and do not count towards the final grade.
Course Requirements and Grading

The final grade is made up of the following items:

Midterm Exam: 40%

The midterm exam will take place during class on Wednesday, Mar. 25.

Final Exam: 50%

The final exam will take place during the last class on Wednesday, Mar. 29.

Mini Term Project: 10%

The project involves replicating a well-known pricing anomaly and reviewing the literature around it. Details will be announced in class and posted on Blackboard in early February.

Course Policies (Please read carefully.)

General

• Attendance is essential for passing the course. Note taking is necessary as the lecture notes are sometimes simplified.

• Please refrain from using laptops or smartphones in class.

• Check Blackboard regularly for updates and announcements.

Exams

• Exams are closed-book; one non-graphing calculator is allowed.

• In case of grading errors, appeals can be made in writing only and must include a detailed explanation of the errors in question. The entire exam will be checked for errors, and the re-grading may raise or lower the score.

• Absence in the midterm:
  – All cases: no make-up exam will be provided; the final exam will be worth 90%.
  – Valid medical reason: a doctor’s note must be submitted within a reasonable time frame; the illness must be reasonable severe.
  – All other cases: one full letter grade will be deducted from the final grade (i.e., A → B)

• Absence in the final exam:
  – Valid medical reason: a doctor’s note must be submitted within a reasonable time frame; the illness must be reasonable severe; a make-up exam will be provided at a later date.
  – All other cases: a mandatory fail grade will be assigned.

Academic Integrity

• It’s simple: don’t cheat on exams. Violators will be reported to the school and face serious consequences.
Tentative Schedule and Suggested Reading List

1. (Jan. 21, Jan. 28) Introduction; The State Space and the Fundamental Theorem of Finance


2. (Feb. 4) Arbitrage Pricing Theory (APT) and Pricing Anomalies


3. (Feb. 11) Introduction to Derivatives


4. (Feb. 18) Expected Utility Theory


5. (Feb. 25, Mar. 4) The Static Portfolio-Consumption Problem and the Consumption Beta Model


6. (Mar. 11) General Equilibrium


7. (Mar. 25) Midterm Exam

8. (Apr. 1) The Capital Asset Pricing Model (CAPM)


9. (Apr. 8) Dynamic Asset Pricing and the Intertemporal CAPM


10. (Apr. 15) Market Efficiency and Asymmetric Information Models


11. (Apr. 22) Buffer / Review

12. (Apr. 29) Final Exam