Financial   Economics

Instructor: Xiaohu Wang (xiaohu.wang@cuhk.edu.hk) from 11th January to 1st March;
Ji Huang (jihuang@cuhk.edu.hk) from 8th March to 19th April.

Office Hour: Xiaohu Wang Thursday 2:30pm - 3:30pm or by appointment;
Ji Huang

Lectures: Friday 8:30AM - 11:15AM, Esther Lee Building 206.

Course Description: This course is on the economic foundation of modern asset pricing theory. It serves as an introduction to the functioning of the financial market as an efficient venue for organizing investment activities. Various issues on risk measurement, risk assessment, managing risk, investors' psychological attitudes towards risk, and its implications on consumption and portfolio decision making in an uncertain world will be introduced and discussed. The classical Markowitz's mean-variance analysis, CAPM, multi-factor asset pricing theory and no-arbitrage asset pricing theory as cornerstones of modern finance will be received in-depth treatment.

Learning Outcomes: Upon successful completion of this course, students are expected to:

- Acquire advanced knowledge in asset pricing theory in Finance;

- Develop skills in financial modeling and analysis;

- Be able to apply the analytical tools introduced in the course to study complex issues in financial markets.

Prerequisites: Basic knowledge about microeconomics, macroeconomics, calculus, matrix algebra, probability and statistics are necessary for students to comprehend the contents in this course.

Course Web Page: Access through CUSIS.

Main References:

- Course Handouts

- Huang, C. and Litzenberger, R., (1988): *"Foundation for Financial Economics",* Elsevier Science.

- Danthine J.P. and J. Donaldson, (2003): *"Intermediate Financial Theory",* 2nd Edition, Academic Press.

- Ma, C., (2011): *"Advanced Asset Pricing Theory",* Imperial College Press.

- Hull, C.J., (2011): *"Options, Futures, and Other Derivatives"* 8th Edition, Prentice Hall.

Course Requirements:

- **Class Participation [10%]:** Attendance contributes 10% to your final grade as participation score. Three attendance checks will be randomly conducted. **ZERO** participation score would be given to the students who are absent from all the three lectures. Active class participation enriches the course, which is highly encouraged.

- **Problem Sets [20%]:** There are four problem sets assigned during the semester, each of which includes 4 to 5 questions. For each problem set, students will have one week to complete. The problem sets are designed to give you the opportunity to review and enhance the material introduced in the class.

- **No Midterm Exam**.

- **Final Exam [70%]:** It is usually scheduled in the week after the final class. All students are expected to take the final examination at the same time. If you are sick or have other compelling reasons preventing you from taking the test, a certified medical note or proper documents from a dean or other authorities much be supplied. Then a make-up exam might be arranged with new questions different from those in the final examination taken by other students.

Honesty in Academic Work: Please visit the following web-site for details of university policy on Honesty in Academic Work: `http://www.cuhk.edu.hk/policy/academichonesty/`.

Course Outline:

The sessions outlined below include topics which are going to be covered in this course. These are only approximate and more time will be spent on some topics than others.

1. **Expected Utility and Risk Aversion**

   - Utility theory under uncertainty
   - Absolute and relative risk aversion
   - Stochastic dominance

2. **Mean Variance Analysis**

- Efficient frontier with N risky assets
- Efficient frontier with riskless Asset

3. **Linear Factor Models**

- Equilibrium CAPM
- Multi-factor asset pricing theory

4. **No-Arbitrage Asset Pricing Theory with Applications**

- Primitive vs derivative securities
- The arbitrage theorem in two-period economy
- The arbitrage theorem in multi-period economy
- Applications
  - Put-call-futures parity
  - CRR option pricing model
  - Black-Scholes-Merton formula
  - Ho-Lee model of the term structure of interested rates