Yale University – Department of Economics
ECON 411b -- ECONOMICS OF UNCERTAINTY AND INFORMATION
Spring Term 2014

Lectures: TTh 2-3:45
                      Location TBA

Instructor: Eduardo Faingold
                      http://www.econ.yale.edu/~ef253/
                      eduardo.faingold@yale.edu
                      30 Hillhouse Ave., Rm. 27
                      Office hours: TBA

Topic: *Economics of Uncertainty and Information* is an advanced course in microeconomic theory. It studies individual and collective choice in the presence of uncertainty and asymmetric information, and the implications of this decision making for economic phenomena. The course develops the basic analytical tools used by economists to study decisions under uncertainty. These are then used to examine asset markets, adverse selection, screening, signaling, moral hazard, incomplete contracts, bilateral trade with asymmetric information and mechanism design. Applications include the economics of insurance, taxation, asset pricing, regulation, price discrimination, incentive contracts, job market signaling, hold-up problems, auctions, and other topics. Game theory concepts will be developed as needed.

Prerequisites: Economics 411 requires Intermediate Microeconomics, in the form of Econ 121 or Econ 125. Economics 411 also requires the prior completion of a course in mathematics at the level of calculus or higher. This would typically be Math 112, 115, 118 or 120, depending on your background in mathematics and the level at which you start. More importantly, you will be expected to be comfortable with the use of mathematics. Mathematics is often the most convenient tool for reasoning precisely, and we will use it regularly. In particular, you will be expected to be comfortable working with derivatives and integrals and solving systems of equations.

Texts:

Timothy van Zandt, (2006): *Economics of Uncertainty and Information.* Draft
        book in preparation for Oxford University Press, available on classes*v2
        for your personal use; please do not circulate.

We will often go beyond the treatment offered in the text, both in terms of the depth of coverage and to include additional topics. Lecture notes on advanced topics, such as auction theory and mechanism design, will be provided. Some lectures will require reading of research papers published in academic journals, as indicated in the course outline below. These papers will be made available on classes*v2.

Requirements: Grades will be based on:

20%:   Homework
20%:   Midterm exam on February 13 (in class)
30%:   Presentation
30%:   Final exam, date TBA

Homeworks: Every other week there will be a homework assignment, to be downloaded from classes*v2. These will be due in class, two weeks after they are assigned. Answers will typically be posted the day the homework is due. As a result, late homework will not be accepted, under any circumstances. When computing homework scores, your lowest two scores will be dropped, allowing two homework assignments to be missed if necessary without dire consequences.

Presentations: Each student will formulate and present a research project at the end of the course. More specifically, the task consists of finding an interesting real world phenomenon that has not been discussed in class and show how one can use the tools learned in the course to model it. The student is also required to submit a 3 to 5 page summarizing the project. Presentations will take place in the last 1 or 2 weeks of the course, depending on enrollment.

Course outline:

0. Brief review of probability theory (week 1)

I. Individual choice under risk and uncertainty (weeks 2,3,4)

> Introduction to choice theory. Objective expected utility.
> Readings: Ch. 1 and 2.
>
> Subjective expected utility.
> Readings: Ch. 3.
>
> Risk aversion. Applications.
> Readings: Ch 5.
>
> Information and belief updating.
> Readings: Ch. 4
>
> Advanced topics: ambiguity, menu choice, prospect theory.
> Readings: notes will be provided.

II. Competitive Markets in the Presence of Risk (weeks 5 and 6)

Arrow-Debreu securities. Equilibrium, Pareto optimality and the welfare theorems. Asset Pricing. Complete vs. Incomplete markets.
<u>Readings</u>: Chapters 7 and 8 .

III. Asymmetric Information (weeks 7 to 13)

Monopolistic screening.
<u>Readings</u>: Ch. 10

Adverse selection.
<u>Readings</u>: Ch. 11
        Akerlof, G. (1970). "The Market for 'Lemons': Quality
           Uncertainty and the Market Mechanism," *The Quarterly*
           Journal of Economics, Vol. 84, No. 3., pp. 488-500
        Rothschild, M. and J. Stiglitz (1976). "Equilbrium in
           Competitive Insurance Markets: an Essay on the
           Economics of Imperfect Information," *The Quarterly*
           Journal of Economics, Vol. 90, No. 4. pp. 629-649

Hidden Information after contracting.
<u>Reading</u>: Ch. 12

Signaling.
<u>Readings</u>: Lecture notes.
        Spence, M. (1973). "Job Market Signaling," *The Quarterly*
           Journal of Economics, vol. 87, No. 3, pp. 355-374.

Moral Hazard.
<u>Readings</u>: Ch. 9 and lecture notes.

Advanced topics: The hold-up problem. Incomplete Contracts. Auctions. Mechanism Design.
<u>Readings</u>: notes will be provided.