Syllabus 510 Fall 2016
Biglaiser
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This course is designed to teach you game theoretic tools that you can apply to many interesting strategic situations. We will also investigate models where economics agents have informational advantages over other agents. The grade assessment will be based on two midterms (25% each), a paper (25%), see the separate handout on the paper, the presentation of the paper to the class (10%). The final will count 10%. The remaining 5% will be from homework, which will be mostly assigned during the first half of the term. You are encouraged to work together on homework, but must hand in each assignment individually. No electronic devices can be used during class.

Exam dates: The midterms are on 27 September and 17 November. The final is 10 December at 12pm. No make-up exams will be given.
Books: Main text, especially for the first part of the course, is *An Introduction to Game Theory* by Osborne (O). It is a required text. We will also do many readings from the literature and some other texts. These texts include:

Laffant and Matrimort (L-M), *The Theory of Incentives: The Principal-Agent Model*, Princeton University Press, 2001.
Bolton and Dewatripont (B-D), *Contract Theory*, MIT Press, 2005.
Klemperer (K), *Auctions: Theory and Practice*, Princeton University Press, 2004.

I will post the relevant parts of these books and other readings that we will use in the course on Sakai.

Class Outline

I.   Introduction to Game Theory (O. CH 1)

II.   Strategic Form and Nash Equilibrium and Examples (O. CH 2 and 3)

III.   Mixed Strategy Equilibrium (O. CH 4)

IV.   Extensive Form Games of Perfect Information and Subgame Perfect Equilibrium (O. CH 5 and 6)

V.   Information Economics

        A. Moral Hazard (Hidden Action Models)

                1. Definition and examples- Worker-Firm, Finance, Health Care, Car Insurance

2. Basic Two action-Two State Model (L-M 4.1-4.6)

Arrow, K., "Uncertainty and the Welfare Economics of Medical Care," A*merican Economic Review*, issue 5, 1963.

a. Risk neutral, Unlimited Liability Agent
b. Risk Averse, Unlimited Liability Agent
c. Risk Neutral, Limited Liability Agent

4. Product Quality Choice -
Shapiro, C. "Premiums for High Quality Products as Returns to Reputation," *Quarterly Journal of Economics,* November 1983.

5. Multi-task Model (B-D 6.2)

B. Hidden Information Models

1. Definition and Examples. Insurance (Health, Car), Education, Finance.

2. Lemons Problem
Akerlof, G. "The Market for .Lemons: Quality Uncertainty and the Market Mechanism," *Quarterly Journal of Economics* August l970.

3. Insurance Model Monopoly

4. Insurance Model .Perfect Competition
Rothschild, M. and J.Stiglitz, "Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information," *Quarterly Journal of Economics* August l976.

5. Information Disclosure .Warranties, Intermediaries (B-D 5)

6. Signaling Models and Games with Imperfect Information (O. CH 10,B-D 3.2)
Spence, M. "Job Market Signaling," *Quarterly Journal of Economics*, (3), 1973.
Banerjee, A. "A Simple Model of Herd Behavior," *Quarterly Journal of Economics*, 1992.

7. Non-linear Pricing (B-D 2.1, 2.2)

C. Auctions (K 1-2)

1. Complete Information - refundable bids (only winning bidder pays)
2. Complete Information - all pay auction
3. Incomplete Information - Private Values
4. Incomplete Information - Common and Correlated Values

5. Revenue Equivalence Theorem