Strategic Behavior and Experimental Economics

Course Preliminaries

The course is research oriented and has three main learning objectives. The first is to introduce the students in the course to the methods of conducting experimental economics research. The second is to review and critically assess game theoretic predictions of economic behavior in the light of people’s actual behavior in the economic laboratory. Some of the recent developments in experimental economics will be surveyed. The third is to start the students on their own experimental and/or game theoretic research projects.

The course will include seminar type meetings and some laboratory sessions. Students are required to actively participate in both class discussions and laboratory sessions. The assessment will consist of the following:

1. **(50% of the grade) Problem sets, class presentations and participation.**
   
   I will be giving out some review problems covering basic concepts of game theory. Further, students will be reading, presenting and critically discussing research papers on the list throughout the semester. Each student is expected to present in class several research papers, and actively participate in class discussions.

2. **(50% of the grade) Final exam in the form of an original research proposal**
   
   in game theory or experimental economics. The proposal should contain the statement of research problem, summary of the relevant existing literature, description of experimental design, and discussion of how one intends to analyze experimental results. We will hold a mini-conference to give you a chance to present your proposal, and to get feedback from each other, in the last week of classes. The written proposal will be due on Monday of the finals week, December 10, 2012, by 4 pm. (Students with the best proposals will be encouraged to proceed with their research projects.)

   You are encouraged to discuss any problems and research ideas with me and with each other, but your assignments should be independent.
Given the research orientation, the amount of reading for the course will be substantial. The texts for the course are


Gibbons is the suggested textbook for a review of game theory. You are also encouraged to refer to the standard graduate micro textbooks by Mas-Colell, Whinston and Green, Varian, and Kreps, and to

Fudenberg and Tirole, 1992, *Game theory*.

Davis and Holt (1993) provides an excellent review of experimental methodology, as well as some traditional topics in experimental economics, such as markets. Kagel and Roth (1995) provides excellent surveys of research in the key areas of experimental economics as of 15 years ago. Camerer (2003) is a more recent textbook focusing on behavioral/experimental game theory.

In addition, students will be required to read, present and discuss journal articles in experimental economics. Here are some introductory-style review articles:


Tentative Course Syllabus

Experimental Economics and Behavioral Game Theory

The following syllabus and reading list may change during the course of the semester, depending on your preferences and on our progress. We will be covering selected topics from suggested below. The reading list will change accordingly.

The papers included below are from three categories: (1) the most influential and most cited papers in experimental economics and behavioral game theory, (2) the latest high-impact contributions; (3) Papers on selected topics of interest. We will be able to cover only some of the papers in class; the rest are given for your reference, and to help you develop research ideas. We will coordinate on which papers we will be focusing on in class.

METHODOLOGY

Topic 1 Introduction to experimental economics; methodology and trends

Reading:

Camerer, Chapter 1.
Davis and Holt, Chapter 1.


SOCIAL PREFERENCES

Theory review

Formal structure of games: actions, strategies, payoffs; normal and extensive form; information; common knowledge; equilibrium.

Gibbons, Sections 1.1A, 2.4A. MWG, Ch.7; FT 3-6, 77-90, 541-48; Kreps 11

Static games of complete information: Dominant strategies; iterated dominance; Nash equilibrium; focal points; Cournot and Bertrand games; mixed strategies.

Gibbons, Sections 1.1B, 1.1C, 1.2, 1.3A
Topic 2: Public goods experiments and Prisoners’ dilemma

Reading:
Davis and Holt, Sections 2.1, 2.5. Kagel and Roth (eds.): Ledyard, Chapter 2.

Reading on Cooperation in Public Goods:

Topic 3: Bargaining and Other-regarding behavior

Theory review
Dynamic games of complete information: Backward induction; subgame perfect Nash equilibrium.
Gibbons, Section 2.1; MWG 9.A-9.B; FT 67-77; 90-100; Kreps 12.3

Reading: experiments:
Camerer, Ch 2.

**Reading: theories of social preferences**


**Topic 4: Tying lab and field behavior; field experiments**


**Topic 5: Group identity and social networks**


COORDINATION, MIXED STRATEGIES, AND DOMINANCE SOLVABILITY

Topic 6: Coordination games and mixed strategies (Camerer, Ch 3, 7)

Reading on coordination games:


Reading on mixed strategies:


Topic 7: Depth of reasoning; unraveling in guessing game (Camerer, Ch 5)


DYNAMIC GAMES

Topic 8: Extensive forms and backward induction; centipede game

Reading

Camerer, Ch 5.3


**Topic 9: Cooperation and repeated interactions**

**Theory review**

Repeated Games: finite and infinite games; cooperation; trigger strategies; folk theorems; applications


**Reading on repeated interactions in PD and oligopoly:**


**Reading on infinitely-repeated Prisoners’ Dilemma**


**Topic 10: Reconciling theory and experiments: introspection, learning and bounded rationality**

Camerer, Ch 6, 9


MARKETS

**Topic 11** Double auction and posted offer markets

**Reading:**
- Davis and Holt, Chapters 3, 4.

**Topic 12** Applications: Industrial organization, International Trade, Environmental Economics

**Reading:**

**Topic 13** Auctions

**Theory review**
Static games of incomplete information. Types; beliefs; Bayesian updating; Bayes-Nash equilibrium; applications.
- Gibbons, Sections 3.1, 3.2, 3.3
- MWG 8.E; FT 207-226

**Reading:**


OVERVIEW