Economics 207 introduces the subject matter, methods, and results of experimental economics. The course will stress the interaction of theory and experiment, seeking to relate questions in the theory of markets, games, and decisions to issues in experimental design and the analysis and interpretation of results. After an initial overview, these themes will be developed by discussing series of related experiments. The overlap of topics with last year's offering of Economics 201A, Behavioral Game Theory, will be approximately 50%, but the focus will be different, and the topics will include nonstrategic as well as strategic environments.

The course meets Tuesdays and Thursdays from 10:00-11:20 a.m. in Sequoyah 244, January 8 through March 14. Classes include lectures, demonstration experiments, discussions, and perhaps presentations by students taking the course for a grade. (There will be demonstration experiments in the first lecture, so please go beforehand to http://eexcl.ucsd.edu/sample.htm and read and consent to the general terms of the sample human subjects consent form posted there. EEXCL's new website, http://eexcl.ucsd.edu/, has some other things of interest. You should also practice the demonstration experiment at http://eeps3.caltech.edu/market-demo/ before the demonstration in the second week.) My office hours are Wednesdays from 2:00-3:00, or by appointment.

Students have two enrollment options. Those who just want to attend the lectures should enroll S/U; there will then be no formal requirements. Those who want a grade should enroll for one: they must either do a class presentation on a topic in the experimental literature not covered in the lectures, or complete and present a draft experimental design of their own choosing. The topic should be agreed on with me by the end of the third week, and the latter option can be a collaborative effort. If you are a student who plans to attend the lectures, please enroll either S/U or for a grade (this will help convince the administration graduate electives are worth offering).

The most important readings are marked *. Readings on reserve on the course web page, http://weber.ucsd.edu/~vcrawfor/econ207.htm are marked +; those available as hard copies on graduate reserve are marked ++; readings available from the ucsd.edu domain as pdf files on JSTOR, http://www.jstor.org/jstor/ (IDEAL, http://www.idealibrary.com/) are marked J (I); if you have trouble downloading anything, copies of some files not on the course web page are available on request by e-mail. I have ordered copies of three useful books for the bookstore:

++Experimental Economics, Douglas Davis and Charles Holt, Princeton, 1993 (graduate text)
++The Handbook of Experimental Economics, John Kagel and Alvin Roth (eds.), Princeton, 1995 (comprehensive surveys of experimental work in various fields of economics)

Additional useful readings can be found in:

+Colin Camerer, Behavioral Game Theory: Experiments on Strategic Interaction, Princeton, in press; pdf files also at http://www.hss.caltech.edu/CourseSites/Psy101/psy101.html
1. Introduction and Overview

*Camerer, Chapter 1, especially Section 8 (Appendix 2)
++Crawford, Section 3. pp. 215-216
++Davis and Holt. Chapter 1 (Appendix optional)
++Kagel and Roth, Chapter 1, pp. 1-23 (rest optional)


Demonstration experiment: Normal-form "order statistic" tacit coordination games with multiple, Pareto-ranked equilibria

Questions: What determines subjects' initial responses in tacit coordination games? Do they learn to play equilibria? What determines equilibrium selection in the long run?

Design: Normal-form complete-information coordination games in which effects of context are minimized, with common set of Pareto-ranked equilibria, varying off-equilibrium payoffs to stress-test traditional theories of equilibrium selection (risk- and payoff-dominance), and large (but finite) strategy spaces to give learning dynamics room to vary widely across treatments

Results: Little difference in initial responses, but modal responses give weak support for notions like risk-dominance; large differences in subsequent play, with adaptive dynamics driven by strategic uncertainty determining equilibrium selection in the long run

Follow-up reading:


++Kagel and Roth, Chapter 3, pp. 209-218
2. Competitive Markets
*++Davis and Holt, Chapter 3, pp. 125-155
*++Kagel and Roth, Chapter 1, pp. 49-60
++Kagel and Roth, Chapters 5 and 6

Demonstration experiment: Multiple-unit double-auction market http://eeps3.caltech.edu/market-demo/

Questions: What does "perfect competition" require (in 1960 most theorists would have said large numbers of well-informed traders on both sides of the market)? How well do competitive markets aggregate participants' private information? How do institutions affect performance?

Design: Inducing supply and demand, providing incentives, controlling information

Results: Robustly competitive outcomes for double oral auction with small numbers of traders on both sides, better results when traders are not informed about others' values, powerful but not unlimited aggregation of private information for some market institutions

Follow-up reading:

3. Extensive-Form Games
*+Camerer, Chapter 4, pp. 12-28; Chapter 5, pp. 4-14
*++Davis and Holt, Chapter 5, pp. 263-275
++Kagel and Roth, Chapter 4, pp. 253-331
Demonstration experiment: Normal- versus extensive-form framing in 2x2 games

Questions: Does extensive-form framing yield systematically different results than normal-form framing (e.g. by making backward induction more salient or by creating asymmetries subjects can use to solve coordination problems)? How?

Design: Presentation of games in extensive form, designs to elicit "one-shot" responses versus designs that allow learning in repeated play

Results: Some failure to follow backward induction logic, some bias in extensive form toward allowing second mover to influence outcome

Follow-up reading:


David Cooper and John Van Huyck, "Evidence on the Equivalence of the Strategic and Extensive Form Representation of Games," manuscript, Texas A&M University, September 2001 (http://econlab10.tamu.edu/JVH_gte/Sim1.pdf)


Demonstration experiment: MouseLab matrix games with dominance, iterated dominance, and unique pure-strategy equilibria (Costa-Gomes, Crawford, and Broseta (2001)); MouseLab asymmetric two-person guessing games (Costa-Gomes and Crawford (2002), time permitting)

Questions: To what extent do dominance and iterated dominance determine behavior in normal-form games, with or without opportunities for learning from experience? How do subjects deviate from equilibrium in such games? What decision rules best describe their behavior?

Design: Presentation of games in normal form, designs to elicit "one-shot" responses versus designs that allow learning in repeated play, using MouseLab to track subjects’ searches for hidden payoff information along with their decisions.

Results: Subjects typically follow 1-3 rounds of iterated dominance, but no more; they tend to play equilibrium in simple games, but deviate systematically in more complex games; much of their behavior (information search as well as decisions) is well described by simple boundedly rational strategic decision rules like Naive and L2

Follow-up reading:
(++Camerer, Chapter 5, pp. 54-80
+Miguel Costa-Gomes and Vincent Crawford. Instructions, script, and other materials for asymmetric two-person guessing game experiments, 2001

5. Unstructured bargaining
;++Crawford, pp. 223-227
++Kagel and Roth, Chapter 1, pp. 40-49
No demonstration experiment

Questions: What determines outcomes of unstructured bargaining in settings like those studied in cooperative game theory? How well do standard bargaining theories (structured/noncooperative or unstructured/cooperative) describe observed bargaining outcomes?

Design: control of bargaining institutions and information, use of binary lottery procedure and private information to create invariances that can be used to test the theory, use of monitored communication via computer to mimic "no rules" bargaining with a deadline, modern implementation via NetMeeting software as in Moreno and Wooders (1998))

Possible topic for a student presentation, but may be covered in lectures if time permits:

6. Individual Decisions under Uncertainty (issues: preference reversals, Allais paradox and other deviations from expected-utility maximization, Ellsberg paradox and other deviations from probabilistic sophistication, time consistency and hyperbolic discounting, framing, risk aversion in gains and losses, mental accounting)
   *++Kagel and Roth, Chapter 1, pp. 67-86, Chapter 8, pp. 587-676
   *++Davis and Holt, Chapter 8, pp. 435-504

Further possible topics for student presentations:

7. Fairness and "social utility" (issues: form of social preferences and how they interact with strategic decision-making, reciprocity, "indirect" evolutionary models of preferences)
   *+Camerer, Chapter 3
8. Coordination

*(+Camerer, Chapter 7)


9. Preplay Communication (issues: how does it work? which institutions promote it?)


10. Learning (issues: reinforcement versus beliefs-based versus hybrid models, mixed strategies, analogies, "strategic teaching")

*(+Camerer, Chapters 2 and 6)

++Crawford, pp. 227-235

Colin Camerer and Teck-Hua Ho, "Experience-weighted Attraction Learning in Normal Form Games," *Econometrica* 67 (1999), 827-874


http://www.economics.harvard.edu/~aroth/papers/AER884.pdf

(1) Yin-Wong Cheung and Daniel Friedman, "Individual Learning in Normal-Form Games: Some Experimental Results," *Games and Economic Behavior* 19 (1997), 46-76


11. Auctions (issues: private versus common value auctions, open outcry versus sealed bid, first- and second-price, winners' curse and other phenomena)

*(++Davis and Holt, Chapter 5, pp. 275-316)
12. Public Goods (issues: public goods provision among two or many players, subject pool effects, dominated strategies versus equilibrium predictions)

*++Davis and Holt, Chapter 6, pp. 317-342
*++Kagel and Roth, Chapter 1, pp. 26-35, and Chapter 2, pp. 111-174


*++Davis and Holt, Chapter 7, pp. 381-433
*++Crawford, pp. 220-221
+David Cooper and John Kagel, "Learning and Transfer in Signaling Games," manuscript, 2001