Economics 109: Game Theory

Fall 2004, Professor Joel Watson

This course examines strategic situations, in which each agent's behavior generally affects the well-being of the other agents. Game theory is a technical framework for rigorously analyzing decision-making in such settings. Almost every type of interaction between living things is strategic. As social scientists, we focus on human interaction, and we shall assume that people behave in a rational, deliberate manner. In addition to exploring theory in the abstract, we will consider a variety of applications from economics, political science, and law.

Schedule: MWF 2:00 – 2:50 p.m. in Solis 107. There will also be a problem-solving/discussion session on Monday evenings, 5:00 – 6:50 p.m., in HSS 2250.

Examinations: There will be one midterm examination and a final examination. The midterm exam will take place on Friday, October 22, during the normal class time. The final exam will be on Monday, December 6, from 3:00 p.m. until 6:00 p.m.

Quizzes/Problem Sets: Weekly problem sets will be assigned. There will also be occasional web-based quizzes; all students are required to use UCSD's WebCT system to take the quizzes (dates and times will be announced in class).

Grading Weights: Midterm 35%; final 45%; problem sets/quizzes 20%.

Required Textbook: Watson, J., *Strategy: An Introduction to Game Theory* (W.W. Norton).

Class Website: Materials will be posted on the WebCT page for Economics 109. Instructions for accessing WebCT are at http://iwdc.ucsd.edu/step1_webct4.pdf . All students should log in regularly and check for announcements. A link will appear on Watson's web site: http://weber.ucsd.edu/~jwatson/wcourse.htm .

Class Competitions: There will be a few optional competitions between the professor/TAs and the students. These will take place on select Monday evenings and/or Friday afternoons.

Teaching Assistants and Office Hours: Philip Babcock (W 12-2, Th 11-12; Econ 120; psbabcoc@econ.ucsd.edu), Julie Lee (T 10-11, W 10-12; SH 238; j138lee@econ.ucsd.edu), and Chris Wignall (M 8-9, T8-9:30; SH 206; cwignall@ucsd.edu). Appointments can also be made.

Watson's Office Hours and Location: M 12:30-1:30, M 5-6:30 (in HSS 2250), and F 3-4. SH 244 (or a nearby room) will be used for office hours when many students are present. Watson's office is Econ 310. **Please do not disturb Watson outside of office hours unless you have an appointment.**

The fine print:

(1) Incidents in which students are suspected of cheating on exams will be reported to the administration.
(2) Students have one week from the day in which the midterm examinations are returned to report errors in grading and/or to request that problems be re-graded. Re-grading may be requested for final exams through the first week of Winter quarter. If a student submits his/her exam for re-grading, then the student's entire exam will be re-graded by the professor (with no guarantee of a higher total score).
(3) Students should attend and participate in class; their mobile phones should not. The professor will employ the necessary means to discourage classroom distractions.

Course Outline

Topic	Chapters in the textbook
A. Representing Games	
Extensive form, strategies	1 – 3
Normal form, beliefs/mixed strategies	4 – 5
B. Analysis of Static Settings	
Best response, rationalizability, applications	6 – 8
Equilibrium, applications	9 – 10
Other equilibrium topics	11 – 12
Contract and law	13
C. Analysis of Dynamic Settings	
Extensive form, backward induction, SPE	14 – 15
Examples and applications	16 – 17
Bargaining	18 – 19
Negotiation equilibrium, examples	20 – 21
Repeated games, applications	22 – 23
E. Information	
Random events and incomplete information	24
Risk and contracting	25
Bayesian equilibrium, applications	26 – 27
PBE, applications	28 – 29