Economics 109: Game Theory

Winter 2011, 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 10:00 – 10:50 p.m. in Center 113. There are also problem-solving/discussion sessions on Mondays (7:00 – 8:50 p.m. in CSB 002). Lectures will be podcast at http://podcast.ucsd.edu/.

Examinations: There will be one midterm examination and a final examination. The midterm exam will take place on Wednesday, February 2, at 7:00 – 8:50 p.m. in Center 214. The final exam will be on Friday, March 18, from 8:00 to 11:00 a.m.

Quizzes/Problem Sets: Weekly problem sets will be assigned. There may also be occasional pop quizzes in class or on the Internet (through WebCT).

Grading Weights: Midterm 38%; final 50%; problem set completion (not graded)/quizzes 12%.

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

Class Website: Materials will be posted on the WebCT page for Economics 109. Instructions for accessing WebCT are at http://webct.ucsd.edu . Students should log in regularly and check for announcements. Watson's web site is: http://weber.ucsd.edu/~jwatson/wcourse.htm .

Class Competitions: If schedules permit, there may be a few optional competitions between the professor/TAs and the students.

Teaching Assistants, Office Hours, and Responsibilities: Elisa Hovander (ehovande@ucsd.edu, Econ 125), office hours TBA; Kristy Buzard (kbuzard@ucsd.edu, Econ 123), Wednesdays 8:00 – 9:45 a.m., LEAD TA; Igor Vaynman (Sequoyah Hall 236, ivaynman@ucsd.edu), Thursdays 8:15 – 9:15 a.m. and 11:00 a.m. – noon; Ryan Fuller (Sequoyah Hall 139, rsfuller@ucsd.edu), Tuesdays 2:00 – 4:00 p.m. Office hour sessions for TAs may take place in an Econ Department conference room.

Watson's Office Hours and Location: Wednesdays 11:00 a.m. – 1:00 p.m., occasional extra sessions, and by appointment. Office hours will usually take place in Sequoyah Hall 244 (check in Econ 310 if no one is present in SH 244). **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 Spring 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 and other devices 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

Not all topics/chapters will be covered.