Economics 109: Game Theory
Fall 2005, 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 11:00 – 11:50 a.m. in Center 119. There will also be problem-solving/discussion sessions on Wednesday evenings at 7:00 p.m. in Center Hall 119.

Examinations: There will be one midterm examination and a final examination. The midterm exam will take place on Wednesday, October 26, from 7:00 p.m. until 8:20 p.m. in York 2722 (*note the evening session*). The final exam will be on Monday, December 5, from 11:30 a.m. until 2:30 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 . Students should log in regularly and check for announcements. 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 Wednesday evenings and/or Friday afternoons.

Teaching Assistants, Office Hours, and Responsibilities: Min Seong Kim (msk003@ucsd.edu, Econ 117), T Th 4:00-5:30, in charge of problem set collection; Nick Turner (niturner@ucsd.edu, Sequoyah Hall 207), M 12:00-1:30 and W 9:30-11:00, in charge of problem set solutions; Yi Zhang (y9zhang@ucsd.edu, Econ 119), F 12:00-2:00, in charge of W evening sessions.

Watson's Office Hours and Location: M 10:00-10:45, W 12:00-1:00, often the W evening session, and by appointment. SH 244, Econ 210, 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