

Economics 109: Game Theory
Winter 2010, 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 Center 119. There will also be problem-solving/discussion sessions on Mondays (8:00 – 8:50 p.m. in Solis 107) and Tuesdays (9:00 – 9:50 in Peterson 110). 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 3, at 7:00 – 8:50 p.m. in Center 214. The final exam will be on Monday, March 15, from 3:00 to 6:00 p.m.

Quizzes/Problem Sets: Weekly problem sets will be assigned. There may 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 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: There will be a few optional competitions between the professor/TAs and the students. The schedule will be announced.

Teaching Assistants, Office Hours, and Responsibilities: Elisa Hovander (ehovande@ucsd.edu, Econ 125), Wednesdays 12:00 – 2:00 p.m.; Kristy Buzard (kbuzard@ucsd.edu, Econ 123), Mondays 9:00 – 11:00 a.m.; Anne Marie Schnecker (aschneck@ucsd.edu). Office hour sessions for TAs may take place in an Econ Department conference room.

Watson's Office Hours and Location: Mondays 11:00 a.m. – 1:00 p.m., occasional extra sessions, and by appointment. SH 231 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 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.