

Economics 109: Game Theory

Fall 2002, Professor Joel Watson

In this course, we will examine strategic situations, where 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: TTh 9:30 – 10:50 in Peterson 103. There will also be an optional problem-solving session on Tuesday evenings (most likely 5:00 – 6:30 p.m.; the exact time and location will be announced).

Examinations: There will be one midterm exam and a final exam. The midterm exam will be on Thursday, October 31, during the normal class time. The final exam will take place on Wednesday, December 11, from 8:00 a.m. until 11:00 a.m.

Quizzes/Problem Sets: Weekly problem sets will be assigned. There will also be occasional in-class quizzes (students who are absent from class will fail these).

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

Watson's Office Hours and Location: T 11:00 – 12:00 a.m., W 1:30 – 2:30 p.m., immediately after most class sessions, and by appointment. The Tuesday evening session will be used for extended office hours and problem-solving. Watson's office is 310 Economics building. If you cannot meet with the professor during his office hours, call or see him after class to arrange another time to meet. Please do not disturb him at other times unless you have an appointment.

Required Textbook: Watson, J., *Strategy: An Introduction to Game Theory*.

Class Website: <http://weber.ucsd.edu/~jwatson/wcourse.htm> (check regularly for announcements).

Teaching Assistant: Jonathan Smith, Sequoyah Hall 243, j27smith@econ.ucsd.edu

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) Each student should confirm that all of his/her work through tenth week has been accurately recorded before the final exam takes place. (The professor and T.A. will facilitate this.) Once the final exam begins, all homework and midterm exam grades are fixed as recorded by the professor.
- (4) Students must keep cell phones off, and refrain from distracting behavior, during class.

Course Outline

<u>Topic</u>	<u>Chapters in the textbook</u>
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