Economics 109: Game Theory

Winter 2001, 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 2:20 – 3:40 (HSS 2250) and T 3:55 – 5:15 (Peterson 104), through March 15. The extra session scheduled for Tuesday afternoons will allow us to cancel some classes toward the end of the quarter.

Examinations: There will be one midterm exam and a final exam. The midterm exams will be on Thursday, February 8, during the normal class time. The final exam will take place either on Thursday, March 22, from 3:00 p.m. until 6:00 p.m. or on Monday, March 19, from 3:00 p.m. until 6:00 p.m.

Grading Weights: Midterm 35%; final 50%; problem sets and class participation 15%.

Watson's Office Hours and Location: W 1:00 – 2:45 p.m., after most class sessions, and by appointment. The Tuesday 3:55 – 5:15 class time will be periodically used for extended office hours and problem-solving sessions. 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 during other times unless you have an appointment.

Textbook: Watson, J., *Strategy: An Introduction to Game Theory*., available at the bookstore (in pre-published form).

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) 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.

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