Economics 109: Game Theory

Winter 2015, 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: This course will experiment with a hybrid format, with flexible use of the classroom time and some lectures delivered on line. The meeting schedule is Tuesday evenings 5:00 – 7:50 p.m. in GH 242, with problem-solving/review sessions on Mondays 6:00 – 7:50 p.m. in HSS 1330. Lectures will be podcast at http://podcast.ucsd.edu/. There will be no class meetings on university holidays.

Examinations: There will be three short midterm exams during the normal class time; the tentative plan is to have these on January 20, February 17, and March 10. There may also be one or two on-line quizzes. The final exam will be on Thursday, March 19, at 7:00 p.m.

Problem Sets: Problem sets will be assigned but not collected. Students will be expected to complete a variety of the textbook exercises, including all of the ones with solutions in the textbook (Exercises 1, 3, 5 and 9 from each chapter).

Grading Weights: to be determined.

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

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

Teaching Assistants: Naveen Nagesh Basavanhally (Econ 115, nbasavan@ucsd.edu); Isla Globus-Harris (Econ 124, iglobush@ucsd.edu); and Vincent Leah-Martin (Econ 124, vleahmar@ucsd.edu).

The schedule of TA and faculty office hours will be shown on the course ted site.

Procedure for Questions: It is best to ask questions in class and in office hours. To ask questions by email, send an email to TA Naveen or TA Coyne (*not to Professor Watson*). The TAs will answer your questions or forward them to Watson.

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. 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

Dates	Topic	Chapters in the textbook
	A. Representing Games	
1/6	Extensive form, strategies	1 – 3
	Normal form, beliefs/mixed strategies	4
	Basic assumptions	5
	B. Analysis of Static Settings	
1/6	Best response and dominance	6
1/13	Rationalizability	7
	Nash equilibrium	9
1/20	*Midterm exam 1*	
1/20	Applications of rationalizability and Nash eq.	8, 10
1/27	Mixed strategy Nash eq., applications	11
	Strictly competitive games, security strategies	12
	C. Analysis of Dynamic Settings	
2/3	Details of the extensive form	14
	Sequential rationality, subgame perfection	15
2/3 - 2/10	Examples and applications	16 – 17
2/10	Bargaining games	18 – 19
2/17	*Midterm exam 2*	
2/17	Repeated games	22
	Applications	23
	D. Information	
2/24	Incomplete information	24
	Risk and contracting	25
	Bayesian equilibrium	26
	Applications	27
3/3	Perfect Bayesian equilibrium	28
3/10	*Midterm exam 3*	
3/10	Applications	29

Note that not all chapters will be covered.