

## Economics 109: Game Theory (Sessions A00 and B00)

Fall 2008, 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:**

Session A00:	Lectures are MWF 9:00 – 9:50 a.m. in Center 105. Optional discussion sections are M 4:00 – 4:50 p.m. in Solis 104 and W 5:00 – 5:50 p.m. in Center 105.
Session B00:	Lectures are MWF 10:00 – 10:50 a.m. in Solis 104. Optional discussion sections are M 5:00 – 5:50 p.m. in Center 105 and W 6:00 – 6:50 p.m. in Center 105.

Discussion sections will be used to review material, present optional material, and help with exercises. The second lecture each day will be podcast at <http://podcast.ucsd.edu/>.

**Examinations:** There will be two midterm examinations and a final examination. The midterm exams will take place on Wednesday, October 29, and Wednesday, December 3, from 6:00 to 7:50 p.m. in Peterson 108. The final exam for Session A00 will be on Wednesday, December 10, from 8:00 a.m. until 11:00 a.m. The final exam for Session B00 will be on Friday, December 12, from 8:00 a.m. until 11:00 a.m.

**Quizzes/Problem Sets:** Weekly problem sets will be assigned; it will be announced later which problem sets must be submitted.

**Grading Weights:** Midterms 75%; final 15%; problem set completion (not graded)/participation 10%.

**Required Textbook:** Watson, J., *Strategy: An Introduction to Game Theory* (W.W. Norton), **2nd Ed.**

**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/Extra Discussions:** There may be a few optional competitions or discussions between the professor/TAs and the students. These will be announced.

**Teaching Assistants, Office Hours:** Kristy Buzard ([kbuzard@ucsd.edu](mailto:kbuzard@ucsd.edu), Econ 123), Fridays 12:00—1:50 p.m.; David Eil ([deil@ucsd.edu](mailto:deil@ucsd.edu), Sequoyah Hall 238), Tuesdays 3:00—4:50 p.m.; Ben Horne ([bhorne@ucsd.edu](mailto:bhorne@ucsd.edu), Econ 122), Wednesdays 11:00—12:50 p.m.; and Tim Keller ([tkeller@ucsd.edu](mailto:tkeller@ucsd.edu), Sequoyah Hall 140), Thursdays 9:00—10:50 a.m. TAs may hold office hours in a conference room (such as SH 231). Tim Keller will be in charge of problem sets and WebCT.

**Watson's Office Hours and Location:** Mondays 1:00—2:50 and many Wednesday evening sessions. SH 244 or a nearby room will be used for office hours when more than one student is 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 Schedule

<u>Part</u>	<u>Lecture</u>	<u>Topic</u>	<u>Textbook Chapters</u> [.] = not to be tested
A		Representing Games	
	1 (F 9/26)	Intro, extensive form representation	1-2
	2 (M)	More on extensive form, strategy definitions	3
	3 (W)	Normal form representation	3-4
	4 (F)	Mixed strategies and beliefs, expected payoffs	4-5
B		Analysis of Static Settings	
	5 (M 10/6)	Dominance and best response	6
	6 (W)	More on dominance, best response	6
	7 (F)	Efficiency, rationalizability, location example	7-8
	8 (M 10/13)	More examples	8
	9 (W)	Nash equilibrium	9
	10 (F)	Nash equilibrium examples/applications	10
	11 (M 10/20)	Mixed-strategy Nash equilibrium	11
	12 (W)	Misc, strictly compet. games, security strategies	12
	13 (F)	Contract and enforcement in static settings	13
	14 (M 10/27)	More on contract	13
C		Analysis of Dynamic Settings	
	15 (W 10/29)	Details of e.f., sequential rationality	14
		MIDTERM EXAM 6:00-7:50 p.m. in Peterson 108	
	16 (F)	Subgame perfection	15
	17 (M 11/3)	Examples/applications	16
	18 (W)	More examples, parlor games	16, 17
	19 (F)	Parlor games, bargaining problems	17, [18]
	20 (M 11/10)	Bargaining games, discounting	19
	21 (W)	More on bargaining, contracting	19, [20]
	22 (F)	Overview of some contract issues	21
	23 (M 11/17)	Repeated games	22
	24 (W)	More on repeated games	23
D		Information	
	25 (F)	Incomplete information, examples	24
	26 (M 11/24)	Bayesian Nash equilibrium, examples	26-27
	27 (W)	More examples	27
		(F 11/27 Thanksgiving holiday)	
	28 (M 12/1)	Perfect Bayesian equilibrium	28
	29 (W)	PBE applications	29
		MIDTERM EXAM 6:00 - 7:50 p.m. in Peterson 108	
	30 (F 12/5)	More PBE applications	29