

Syllabus

Course Information

Course title:	Game Theory
Course number:	Economics 109
Course discipline:	Economics
Course description:	In this course we will study strategic situations, in which each player's behavior can affect the well-being of the other players. "Strategy" is the process of deciding how to act in these situations, taking into account the likely behavior of the other players. "Game theory" is the study of strategic situations, using a general framework and tools that can be applied across the entire range of situations. Although game theory can be useful in an evolutionary context, we will focus on human interactions, and assume that people behave in a rational manner. In addition to exploring abstract theory, we will also consider a variety of applications from economics, political science, and sports.
Location:	Ledden Auditorium (in the Humanities & Social Sciences Bldg.)
Meeting day(s):	Tuesday and Thursday
Meeting time(s):	2:00 - 3:20
Prerequisite(s):	Economics 100A-B or Economics 170A-B

Instructor

Name:	David A. Miller, Assistant Professor
Email:	d9miller@ucsd.edu
Office location:	Economics 228
Office hours:	Group Q&A in Econ 210, Monday 5-6pm and Wednesday 1-2pm; individual meetings by appointment. Please refrain from asking questions over email except for administrative matters.

Teaching Assistant I

Name:	Bryan Tomlin
Email:	btomlin@ucsd.edu
Office location:	Economics 125
Office hours:	Mondays 11:30-1pm
Phone:	805-284-1811
Biography:	I was born the son of a poor coal miner, now I'm at UCSD TAing this course.

Teaching Assistant II

Name:	Ben Gillen
Email:	bgillen@ucsd.edu
Office location:	Economics 123
Office hours:	Friday 2-4pm

Weekly Review sessions

Day & Location:	TBA; probably Thursday and/or Friday
Material:	Optional sessions with the TAs to review quizzes, practice problems, and lecture material.

Textbooks

Required reading:	<i>Strategy: An Introduction to Game Theory</i> , Joel Watson, New York: W. W. Norton, 2002, ISBN 0-393-97648-3
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Quizzes

When:	Weekly. There will be 7-8 quizzes in all. You will have a window of several days in which to take each quiz, but once you start a quiz there will be a strict time limit.
Description:	Each quiz can be worth up to 15 points. No collaboration is allowed. Quizzes can be found on the course web site.

Midterm Exam

Date:	Tuesday, February 7, at our regular class time and in our regular classroom.
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Description: 200 points. The midterm exam covers all the material in the first 14 lectures, including chapters 1-11.

Final Exam

Date: Thursday, March 23, 3-6pm, location TBA

Description: 500 points. The final exam covers the entire course, with an emphasis on new material since the midterm exam.

Online participation

Description: Bonus points will be awarded for participation in specific online activities. These may include surveys, games, and bonus questions. Activities will be announced in class.

Grading

General: Quiz and exam grades will be added up and curved. Bonus points will be added *after* the curve.

Regrading: For quizzes, regrade requests should be submitted by email to TBA. For exams, regrade requests should be submitted to TBA on paper with a written explanation within one week after exams are returned, but the instructors will regrade the entire exam. Each regrade request will be accepted only at the discretion of the instructors.

Class rules

Collaboration: No collaboration is allowed on quizzes and exams.

Electronic devices: Cell phones, beepers, and other such devices must be turned off during class. Computer games, internet browsing, and music players are not allowed in class, nor are any other electronic devices to be used for personal entertainment during class.

Academic Honesty

General: Students are encouraged to alert the professor to incidents of possible cheating. The professor and TAs are required to report incidents of suspected cheating to the administration. Cheating will be considered grounds for a reduced or failing grade on the assignment or for the course.

UCSD policy: Students are reminded of the UCSD Policy on Integrity of Scholarship, at <http://www-senate.ucsd.edu/manual/appendices/app2.htm#AP14>.

Adding the class

Policy: To add the class, contact Kimberley Newmark, knewmark@ucsd.edu in the Economics Undergraduate Affairs Office, Sequoyah Hall 245. Economics, Management Science, and Math & Econ majors and minors, and students without a declared major must have completed the prerequisites to add the class. Others must have completed Math 20c. Exceptions may be made on a case-by-case basis for transfer students, graduate students, and students planning to graduate in June.

Table of Contents

To edit a page of content, click the page's title. Tip: Select an item in the Table of Contents before you add a heading, file, or quiz, and it will be added directly below the item that you selected.

The outline of lectures can be found here, along with associated course handouts and links to the quizzes. To reveal the materials associated with a lecture, click the disclosure triangle in the outline.

- ▼ 1. ☐ **Part I: Representing Games**
 - ▶ 1.1. ☐ **Jan. 10: Introduction; Extensive form (chs. 1-2)**
 - ▶ 1.2. ☐ **Jan. 12: Extensive form; Strategies (chs. 2-3)**
 - ▶ 1.3. ☐ **Jan. 17: Normal form; Beliefs & Expected utility (chs. 4-5)**
- ▼ 2. ☐ **Part II: Static settings**
 - ▶ 2.1. ☐ **Jan. 19: Dominance; Rationalizability (chs. 6-7)**
 - ▶ 2.2. ☐ **Jan. 24: Location; Best response; Nash equilibrium (chs. 6, 8-9)**
 - ▶ 2.3. ☐ **Jan. 26: Applications of Nash equilibrium (chs. 8, 10)**
 - ▶ 2.4. ☐ **Jan. 31: Mixed strategy Nash equilibrium (ch. 11)**
 - ▶ 2.5. ☐ **Feb. 2: Prepping for the midterm**

3. ☐ **Feb. 7: Midterm exam**
- ▼ 4. ☐ **Part III: Dynamic settings**
 - ▶ 4.1. ☐ **Feb. 9: Extensive form; Backward induction (chs. 2, 14-15)**
 - ▶ 4.2. ☐ **Feb. 14: Subgame perfection & applications (chs. 15-16)**
 - ▶ 4.3. ☐ **Feb. 16: Alternating-offer bargaining (ch. 19)**
 - ▶ 4.4. ☐ **Feb. 21: Standard bargaining solution; Negotiation equilibrium (chs. 18, 20-21)**
 - ▶ 4.5. ☐ **Feb. 23: Repeated games (ch. 22)**
 - ▶ 4.6. ☐ **Feb. 28: Applications of repeated games (chs. 22-23)**
- ▼ 5. ☐ **Part IV: Incomplete information**
 - ▶ 5.1. ☐ **Mar. 2: Bayesian Normal form; Bayesian Nash equilibrium (chs. 24, 26)**
 - ▶ 5.2. ☐ **Mar. 7: Lemons (ch. 27)**
 - ▶ 5.3. ☐ **Mar. 9: Auctions (ch. 27)**
 - ▶ 5.4. ☐ **Mar. 14: Perfect Bayesian equilibrium; Signaling (chs. 28-29)**
 - ▶ 5.5. ☐ **Mar. 16: Prepping for the final**
- ▶ 6. ☐ **Mar. 23: Final exam**