

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.

Course date: Monday, March 28, 2005 through Thursday, June 9, 2005

Location: Center Hall 113

Meeting day(s): Monday, Wednesday, and Friday

Meeting time(s): 1:00 to 1:50

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 Mondays, 5:30-6:30 in Economics 210; individual meetings by appointment. Please refrain from asking questions over email except for administrative matters.

Teaching Assistant I

Name: Chung Chiang Chen

Email: ccchen@ucsd.edu

Office location: Economics 119

Office hours: 10:00 - 12:00 Wednesday.

Teaching Assistant II

Name: Bryan Tomlin

Email: btomlin@ucsd.edu

Office hours: Tuesdays 10-12 in Economics 125

Textbooks

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

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: Friday, April 29, location TBA, at the normal class time.

Description: 200 points. The midterm exam covers all the material in the first 14 lectures, including chapters 1-11 and 14-15.

Final Exam

Date: Thursday, June 9, 11:30-2:30pm, 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 Chung Chiang. For exams, regrade requests should be submitted to Chung Chiang 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 for transfer students, graduate students, and students planning to graduate in June.

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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**
- ▼ **2. Part II: Static settings**
 - ▶ **2.1. Apr. 11: Dominance (ch. 6)**
 - ▶ **2.2. Apr. 13: Rationalizability; Location (chs. 7-8)**
 - ▶ **2.3. Apr 15: Best response; Nash equilibrium (chs. 6, 9)**
 - ▶ **2.4. Apr 18: Applications of Nash equilibrium (ch. 10)**
 - ▶ **2.5. Apr. 20: More applications of Nash equilibrium (ch. 10)**
 - ▶ **2.6. Apr. 22: Mixed strategy Nash equilibrium (ch. 11)**
 - ▶ **2.7. Apr. 25: More mixed strategy Nash equilibrium**
 - ▶ **2.8. Apr. 27: Prepping for the midterm**
- ▶ **3. Apr. 29: Midterm exam**
- ▼ **4. Part III: Dynamic settings**
 - ▶ **4.1. May 2: Extensive form (chs. 2, 14)**
 - ▶ **4.2. May 4: Backward induction and Subgame perfection (ch. 15)**
 - ▶ **4.3. May 6: Applications of subgame perfection (ch. 16)**
 - ▶ **4.4. May 9: Alternating-offer bargaining (ch. 19)**
 - ▶ **4.5. May 11: Standard bargaining solution (ch. 18)**
 - ▶ **4.6. May 13: Negotiation equilibrium (chs. 20-21)**
 - ▶ **4.7. May 16: Finitely repeated games (ch. 22)**
 - ▶ **4.8. May 18: Infinitely repeated games (ch. 22)**
 - ▶ **4.9. May 20: Applications of repeated games (ch. 23)**
- ▼ **5. Part IV: Incomplete information**
 - ▶ **5.1. May 23: Bayesian Normal form; Bayesian Nash equilibrium (chs. 24, 26)**
 - ▶ **5.2. May 25: Lemons (ch. 27)**
 - ▶ **5.3. May 27: Auctions (ch. 27)**
 - ▶ **5.4. Jun. 1: Perfect Bayesian equilibrium; Signaling (chs. 28-29)**
 - ▶ **5.5. Jun. 3: Prepping for the final**
- ▶ **6. Jun. 9: Final exam**