

Game Theory

Fall 2016

University of Illinois at Urbana-Champaign

Department of Economics

Game theory is the study of mathematical models of conflict and cooperation between intelligent rational decision-makers. Game theory is mainly used in economics, political science, and psychology, as well as logic, computer science, biology and poker. Originally, it addressed zero-sum games, in which one person's gains result in losses for the other participants. Today, game theory applies to a wide range of behavioral relations, and is now an umbrella term for the science of logical decision making in humans, animals, and computers¹.

Basics

- **Course:** Econ 490 - Section L3, CRN 66646.
- **Lectures:** TR 11:00-12:20 in 113 David Kinley Hall.
- **Prerequisites:** Econ 302. Calculus and probability will be needed as well.
- **Textbook (recommended):** *Game Theory: An Introduction* by Steven Tadelis, available at the bookstore and [online](#).
- **Instructor:** Mehdi Shakiba
- **Email:** shakiba2@illinois.edu
- **Office hours:** Thursdays, after the class, 12:30-2:00 in Room 17 (*Office Hour Room*) in the basement of David Kinley Hall; or by appointment.

¹From [wikipedia](#).

Additional Resources

The course is largely self-contained, and relies heavily on Tadelis. Lecture slides will be available after each class, and must be sufficient to solve homework or prepare for exams. However, if you are interested in having additional perspective, intuition, or practice problems, and especially if you are considering graduate studies, the following are highly recommended:

- Gibbons, *Game theory for applied economists*
- Myerson, *Game theory: Analysis of conflict*
- Osborne and Rubinstein, *A course in game theory* (advanced)
- Fudenberg and Tirole, *Game Theory* (advanced)

Course Policies

Important Dates

Midterm Exam	Oct. 18
Final Exam	Dec. 15

Assessment

Assignments	0%
Quizzes (<i>based on assignments</i>)	30%
Midterm Exam	30%
Final Exam	40%

- There will be at least six assignments. Students are not required to turn in their solutions. In fact the solutions will also be posted on Compass.
- There will be a quiz after each assignment. The questions in the quiz will be identical to those in the assignment, except for possible changes in numbers.
- The date for each quiz will be announced once the assignment is posted on Compass. There will be at least one week to prepare.
- The two worst outcomes among the quizzes will be dropped for everyone.
- Any grading curve will be determined at the end of the course.

Attendance and Participation Policy

Attendance is not required, but if you choose to be in class you should behave accordingly. It is especially important that you show up on time.

Exam and Quiz Policy

There are no make-up exams or quizzes. However, since the two worst outcomes among the quizzes will be dropped, each student can technically *skip* up to two quizzes.

The following materials are allowed for use during the exam and quizzes: graphing calculator, accounting calculator or four-function calculator. There are to be no books, papers other than the exam or the quiz itself, cell-phones or other items that connect to the internet. Students found to be using unapproved items are in violation of the Academic Integrity policy of the University and will be subject to disciplinary action.

Course Schedule

A tentative schedule is available on the last page.

University Policies

Final Exam Conflict Policy

The University's final exam policy is available [here](#).

Statement on Accommodations

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources Educational Services (DRES) as soon as possible. To contact DRES you may visit 1207 S. Oak Street, Champaign, call 333-4603 (V/TTY), or email a message to disability@uiuc.edu.

Academic Integrity

"The University has the responsibility for maintaining academic integrity so as to protect the quality of education and research on our campus and to protect those who depend upon our integrity.

Expectations of Students. It is the responsibility of each student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions. Students have been given notice of this Part by virtue of its publication. Regardless of whether a student has actually read this Part, a student is charged with knowledge of it. Ignorance is not a defense."

The University's full academic integrity policy is available [here](#).

Week	Date	Topic
1	T Aug 23	Introduction
	R Aug 25	Rational decision making
2	T Aug 30	Rational decision making
	R Sep 01	Normal-form games
3	T Sep 06	Normal-form games
	R Sep 08	Rationality and common knowledge
4	T Sep 13	Nash equilibrium
	R Sep 15	Nash equilibrium
5	T Sep 20	Continuous cases
	R Sep 22	Continuous cases
6	T Sep 27	Mixed strategies
	R Sep 29	Mixed strategies
7	T Oct 04	Extensive-form games
	R Oct 06	Sequential rationality
8	T Oct 11	Sequential rationality
	R Oct 13	Review
9	T Oct 18	Midterm Exam (in class)
	R Oct 20	Multistage games
10	T Oct 25	Multistage games
	R Oct 27	Repeated games
11	T Nov 01	Repeated games
	R Nov 03	Bargaining
12	T Nov 08	Bargaining
	R Nov 10	Games of incomplete information
13	T Nov 15	Games of incomplete information
	R Nov 17	Games of incomplete information
14	T Nov 22	<i>Thanksgiving Break</i>
	R Nov 24	
15	T Nov 29	Auctions
	R Dec 01	Mechanism Design
16	T Dec 06	Review
	R Dec 08	<i>Reading Day</i>

Tentative Schedule