

PSC/ECO 288: GAME THEORY

SPRING 2016
MW 15:25-16:40pm
MELIORA 203

Prof. Tasos Kalandrakis
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Office Hours: T 1:00-3:00pm

Teaching Assistants

- Peter Bills (Email: pbills@z.rochester.edu. Office hours: W 9:00-10:30am, Harkness 109A).
- Gleason Judd (Email: gleason.judd@rochester.edu. Office hours: M 1:30-3:00pm, Harkness 316).
- Seda Ozturk (Email: sozturk@ur.rochester.edu. Office hours: W 12:30-2:00pm, Harkness 302).
- Brad Smithl (Email: bsmith41@z.rochester.edu. Office hours: T 9:30-11:00am, Harkness 109A).

In social interaction (political, economic, or other) individual welfare depends on the choices of multiple actors. Thus, individuals must anticipate other people's behavior in order to reach best decisions. Game theory is a systematic framework for understanding and analyzing such strategic interaction.

The goal of this course is to introduce the theory of games in a systematic way. We will cover basic solution concepts for simultaneous and sequential move games, with and without complete information. Applications will be drawn from models of conflict and war, electoral competition, voting and agenda manipulation, market competition, etc.

Reading: The main textbook for the course is

- An Introduction to Game Theory, by Martin Osborne (Oxford).

Lectures will be based on – but not limited to – materials from this book. Other optional textbooks you may wish to consult for a different perspective, additional examples, and generally to deepen your understanding are,

- Strategy, by Joel Watson,
- Games, Strategies, and Decision Making, by Joseph Harrington, and
- Strategies and Games, by Prajit Dutta.

Finally,

- Thinking Strategically, by A. Dixit and B. Nalebuff,

is informal yet informative.

Homework Assignments: Game theory cannot be mastered without working through homework assignments. Problem sets will be assigned on a weekly or bi-weekly basis and will be due *in class*. Assignments will be posted on blackboard approximately week before the due date. A tentative detailed schedule of assignment *due dates* is as follows:

- Assignment 1: January 27.
- Assignment 2: February 3.
- Assignment 3: February 10.
- Assignment 4: February 24.
- Assignment 5: March 2.
- Assignment 6: March 16.
- Assignment 7: April 6.
- Assignment 8: April 13.
- Assignment 9: April 20.
- Assignment 10: April 27.

Please check blackboard course pages regularly for up to date information on assignment due dates, etc. *No late homework will be accepted.* Instead, you can drop two assignments in calculating the homework component of your final grade.

Academic honesty: General University policies and guidelines regarding academic honesty apply with the following added clarifications. First, with regard to homework assignments, we expect and even encourage students discussing and jointly working on assignment problems, *yet* you are individually responsible and must prepare and write up submitted answers on your own. Second, course materials including lecture notes, assignments, assignment answer keys, and exams are proprietary and are not intended for sharing outside the classroom, certainly not for dissemination in the public domain through electronic media. You may not make such materials available to any third person or entity within or outside the University.

Recitation: TAs will offer a recitation session on Mondays prior to each assignment (all assignment due dates are Wednesdays) and prior to each midterm exam. Recitations will take place in Lattimore 201 from 4:50pm to 6:05pm.

Evaluation: Your grade will be based on homework assignments (10%), class participation (5%), the first midterm (25%), the second midterm (20%), and a non-cumulative final (40%). *There will be no provisions for extra credit.*

Exam Dates: Both midterms will take place in class, the first on Monday, February 22, and the second on Wednesday, March 23. The final exam is scheduled for Monday, May 2, at 8:30am.

Course conduct: Common courtesy is expected during lectures which includes, for instance, refraining from cell phone use of any type, refraining from computer use for purposes other than access to class notes, and staying in the classroom until the end of lecture.

Schedule: Below is an outline of the main topics of the course.

TOPIC 1 STRATEGIC FORM GAMES

Weeks 1-5. Overview. Dominated strategies. Iterated Elimination. Nash equilibrium in pure and mixed strategies.

TOPIC 2 EXTENSIVE FORM GAMES

Weeks 6-9. Strategies. Subgame perfect Nash equilibrium. Information sets and imperfect information.

TOPIC 3 REPEATED GAMES

Weeks 10-11. Repeated games. Folk Theorems.

TOPIC 4 STATIC GAMES OF INCOMPLETE INFORMATION

Weeks 12-13. Bayesian games.

TOPIC 5 DYNAMIC GAMES OF INCOMPLETE INFORMATION

Weeks 14-15. Dynamic games of incomplete information. Sequential equilibrium. Signaling games.