

ECON 288
Game Theory
FALL 2025

Instructor: Paulo Barelli, paulo.barelli@rochester.edu

TA: Zixuan (Cathy) Zeng, zzeng23@ur.rochester.edu, and Burak Arici, barici@ur.rochester.edu

Time and Location: TR 9:40 - 10:55, Goergen 109

Office Hours: By appointment.

Recitations: TBA

TA's Office Hours: By appointment.

Textbook: *Game Theory for Applied Economists*, Robert Gibbons, Princeton University Press, 1992, and *Strategy: An Introduction to Game Theory*, Joel Watson, W.W. Norton & Company, 2013.

Credits allocated: 4 credits. This course will include 150 minutes per week of lecture time (two lectures at 75 minutes each) and 450 minutes per week of out-of-class student work (e.g., reading assignments, writing, research, problem sets, study time, and other unsupervised work).

Overview: Game theory is a systematic study of strategic situations. It is a theory that helps us analyze economic and political strategic issues, such as behavior of individuals in a group, competition among firms/buyers in markets, platform choices of political candidates, and so on. We will develop the basic concepts and results of game theory, including simultaneous and sequential move games, repeated games and games with incomplete information. The course will enable you to analyze strategic situations on your own. The emphasis of the course is on theoretical aspects of strategic behavior, so familiarity college-level abstract analysis is recommended.

Course Organization:

1. I will use Blackboard to post material and announcements. I will provide notes with the material covered in class.. The textbooks listed above *are, therefore, not mandatory*. On the other hand, some of you may appreciate obtaining material from more than one source, and I encourage you to do so. So you will do well to have access to either or both of the textbooks
2. There will be weekly homework assignments, to be submitted to the TAs for grading.
3. Recitations are primarily aimed at providing examples and applications of the material covered in class with a view to aid you in solving the homework questions. Solutions to the homework and exam questions will be posted on Blackboard.
4. Attendance and participation in class are highly recommended. There will be several pop-up quizzes throughout the semester to reward attendance.
5. Office hours by appointment means that you should arrange with me talk to me outside of lectures. I am generous of my time, so please do not be shy: I am perfectly fine having a Zoom call over the weekend or after hours, or finding a convenient time during the day for in-person sessions.
6. If you are registered for the W section (ECON 288W), *please set up an appointment to talk to me sooner rather than later* so I can give you the guidelines for the required research paper. If you could not register to the W section because it was full and want to transfer into 288W, please let me know.

7. There will be three midterm exams and a final exam.

Midterm 1	September 18
Midterm 2	October 16
Midterm 3	November 13
Final Exam	December 15.

The final exam is cumulative. Midterms are not.

Outline of topics:

Date	Topic Covered
Aug 26	Introduction
Aug 28	Dominance
Sep 2	Iterated Dominance
Sep 4	Rationalizability
Sep 9	Nash Equilibrium
Sep 11	NE in Mixed Strategies
Sep 16	Computing NE in Mixed Strategies
Sep 18	Midterm 1
Sep 23	Security Strategies and Zero-Sum Games
Sep 25	Mixed NE with Infinitely many Strategies
Sep 30	Games with Incomplete Information
Oct 2	Games with Incomplete Information: Bayesian Games
Oct 7	Games with Incomplete Information: Iterated Dominance
Oct 9	Games with Incomplete Information: BNE
Oct 14	Fall Break
Oct 16	Midterm 2
Oct 21	Games in Extensive Form
Oct 23	Backward Induction
Oct 28	Imperfect Information
Oct 30	Repeated Games
Nov 4	Infinitely Repeated Games
Nov 6	The Folk Theorem
Nov 11	Perfect Bayesian Equilibrium
Nov 13	Midterm 3
Nov 18	Perfect Bayesian Equilibrium
Nov 20	Forward Induction
Nov 25	Job Market Signaling
Nov 27	Thanksgiving
Dec 2	Job Market Signaling
Dec 4	Reputations: The Chain-Store Game
Dec 9	Reputations: Cooperation in Finitely Repeated PD
Dec 11	Bargaining with Asymmetric Information
Dec 15	Final Exam

Grading:

Homework	5%
Pop-up Quizzes	10%
Midterms	50%
Final	35%

The midterm scores will be computed as the **best two of the three scores**, with equal weights.

Because the worst midterm grade is dropped, **there are no make-up exams**.

Late arrivals: during an exam, as soon as the first student finishes the exam and leaves the classroom, no other student will be allowed to come in and take the exam.

Course Objectives: You will learn (i) how to represent strategic situations as games (in normal, Bayesian, and extensive forms), (ii) the various forms of solving a game (Iterated Dominance, (Bayes-) Nash equilibrium, Subgame Perfect Equilibrium, and Perfect Bayesian Equilibrium), and (iii) how to use the concepts to provide sophisticated analyses of strategic situations.

Course Learning Outcomes: By the end of the course you will be able to (i) critically understand the assumptions behind the analyzes in game theory, (ii) compute and analyze the kinds of solutions described above, (iii) understand the connections and differences among concepts like (sequential) rationality, equilibrium, and efficiency, and (iv) understand the complex analyzes of games like the Chain-Store Game and Bargaining with Asymmetric Information.

Academic Honesty:

Honesty is taken very seriously in this institution and in this course in particular. All assignments and activities associated with this course must be performed in accordance with SAS-Hajim Academic Honesty Policy. All submitted work (assignments, quizzes, tests) must be completed by the student alone. Students are allowed to discuss homework assignments with other students in the course, but the final submitted version must be done by the student alone. In discussing assignments with other students, make sure you do not allow them to copy your answers, as it is a violation of the policy to not take reasonable measures to protect your work from copying by others. Of course, this also applies to quizzes and exams: do not copy from others and do not let others copy from you. Use of any source other than your peers, TAs, or myself to discuss homework assignments is not allowed. Checking solutions provided in previous versions of this course is a violation of academic honesty. Posting a question, or consulting its answer, on a platform like Chegg.com to get help from an anonymous tutor is a violation of academic honesty. Likewise, using an A.I. tool like ChatGPT as a source of ideas and/or analyzes goes directly against the learning goals of this course and is therefore a violation of academic honesty. You are allowed to use software to help you writing *your own* analysis in your assignments, and if you do use it, please add a note citing the software you used, also indicating how you used it. But be careful – *any help that goes beyond simple grammatical suggestions, and ends up doing something for you that you are supposed to do on your own, is not allowed*.

In general, always ask yourself: “Is this resource (A.I. tool, software, person, etc.) doing something for me that will be assessed by my course instructor?” If so, then **do not use it!** If you are in doubt as to whether it will be assessed by me, ask me before using it.

For quizzes and exams, **you are not allowed to have access to help of any sort**, be it other students, other people, online sources, Chegg.com and similar platforms, past exams, notes, LLMs, recorded lectures, etc.

More information is available at: www.rochester.edu/college/honesty.

Academic Support:

You should reach out to either myself or the TAs in case you are facing any sort of difficulty in the course. We are generally available in person, over Zoom, or via email. Please do not hesitate to seek help if you need it. The University also offers help, with programs in Center for Excellence in Teaching and Learning, <https://www.rochester.edu/college/cetl/about/index.html>, and also the Writing, Speaking and Argument Program <https://writing.rochester.edu>.

Disability Resources:

The University of Rochester respects and welcomes students of all backgrounds and abilities. In the event you encounter any barrier(s) to full participation in the course due to the impact of disability, please contact the Office of Disability Resources. The access coordinators in the Office of Disability Resources can meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations. You can reach the office at http://disability@rochester.edu; (585) 276-5075; Taylor Hall.