

EC 321 Fundamentals of Game Theory Syllabus

Professor Neal Becker

TR 10-11:50

Cramer Hall 401

Course Description

Game theory is the study of strategic interaction. While it certainly applies to games like chess or baseball, it also has many applications in economics, political science, and even biology and computer science. There are two reasons to study game theory: to better play and understand games that you find yourself playing and to better understand and predict outcomes of games that you see others playing.

Over the course of the semester we will be using a little mathematics and a lot of reasoning. We will draw pictures of games, watch games being played, and play games in class

Course Resources

There are several important resources available to you.

The textbook for the class is Games of Strategy by Avinash Dixit, Susan Skeath, and David Reiley. Any edition will do as they will not be very different and might well be less expensive.

The course Canvas site will have a copy of this syllabus, an introduction to each week's topics, general study tips, lecture activity answer keys, and links to useful videos explaining the major points covered each week.

My office hours are an excellent resource. If no one comes in to talk, I will spend my time thinking up difficult homework and exam questions.

Our TA's office hours are an excellent resource.

Your time and effort are the most important resource for doing well in the class. I highly recommend forming a small study group that will meet at least weekly during the semester. The literature suggests that study groups should have at least 3 people, but no more than 5.

Course Staff

I am a teaching professor in the economics department. This is my second term teaching at Portland State University. I came to PSU from the University of Pittsburgh where I have taught for the last five years. Before that I was at Boston University for three years, but I have spent the majority of my career at the University of Kansas.

My office is 450 P in the Urban Building. The best way to get in touch with me is by [email](#). Second best is to just come to my office hours. This semester they are:

- Monday 1-3
- Tuesday 1-3
- Wednesday 12:30-1:30
- Thursday 2-4
- And by appointment

You can also call my office at 1 503 725 6847

The TA for our class is Serra Kirsch, a masters student in the Economics Department. She has office hours on Tuesday 9-12. Stop in before class some time. She holds office hours in the Econ Lab, 411 Urban Center.

Student Evaluation

Your grade for this course will be based on a variety of assignments. There will be more assignments than you might expect for a university course. This is deliberate. Research into learning has shown that the more frequently you recall information, the better you remember it. The class is designed to increase the opportunities for you to recall information. In addition, learning research has found that cramming for exams is one of the worst ways to learn, so the class is designed to minimize cramming by requiring a steady diet of work over the semester.

Midterm exams will count as 40% of your final grade. There will be two midterm exams. Each exam will be designed to take 70 minutes of class, so I will take questions before the exam on exam day. Your lowest midterm exam will count as 10% of your final grade, the highest midterm will count as 30% of your final grade. I discount your lowest exam score because everyone can have a bad day, but I do not drop the lowest score because I don't want to give you an incentive to blow off the material from any section of the class. If you miss a midterm exam you can get a make up exam at a mutually agreeable time if you contact me within a week of the exam date.

The Final exam will be cumulative and count as 40% of your final grade. It will have the same format as the midterm exams, but will be longer to reflect the extra time available for the final. If you are scheduled to have more than two final exams in a 24 hour period, contact me to schedule an alternative time. If you must miss the final exam, I will offer a make up final at a mutually agreeable time.

Lecture activities will occur in the middle of most classes. Most classes will have several lecture activities. There will be a variety of activities: some will be like short quizzes, others will be used to gather data from you that we will use in the class, and some will ask you to play a game. Some of these activities will be graded simply for participation, some will be graded for performance, depending on the activity. I will drop the eight lowest lecture activity scores, and the remaining lecture activity scores will count as 20% of your final grade. Because I drop the eight lowest lecture activity scores, missed lecture activities can not be made up.

Your final grade will be based on the weighted average of all your scores. While the location of the final grade breaks will depend on the exact distribution of scores, the worst case scenario is as follows:

- 97.0% and above is an A+
- 93.0% to 96.9% is an A
- 90.0% to 92.9% is an A-
- 87.0% to 89.9% is a B+
- 83.0% to 86.9% is a B
- 80.0% to 82.9% is a B-
- 77.0% to 79.9% is a C+
- 73.0% to 76.9% is a C
- 70.0% to 72.9% is a C
- 67.0% to 69.9% is a D+
- 63.0% to 66.9% is a D
- 60.0% to 62.9% is a D-
- Below 60% is an F

All grades are rounded to the nearest tenth of a percent. It is possible, even likely, that the grade breaks will be at a lower percentage.

Academic Integrity

Academic integrity is a vital part of the educational experience at PSU. The Student Code of Conduct is the university's policy on academic dishonesty. A confirmed violation of that code in this course may result in failure of the course.

Incomplete Grades Policy

Students do not have a right to receive or demand an Incomplete grade. The option of assigning an Incomplete grade is at the discretion of the instructor when these criteria are met:

- Required satisfactory course completion/participation
- Reasonable justification for the request
- Not sought as a substitute for a poor grade
- Presence of a written agreement (such as the [Incomplete Contract](#))
- A plan in place to resolve Incomplete status

The Office of the Registrar's website has [the full Incomplete Grades policy](#).

Student Services

Disability Access Statement If you have, or think you may have, a disability that may affect your work in this class and feel you need accommodations, contact the [Disability Resource Center](#) to schedule an appointment and initiate a conversation about reasonable accommodations. The [DRC](#) is at 116 Smith Memorial Student Union, 1825 SW Broadway; 503-725-4150.

Basic Needs at Portland State

It can be challenging to do your best in class if you have trouble meeting basic needs like safe shelter, sleep, and nutrition. Resource centers across campus are here to provide assistance, referrals, and support. Please contact anyone on this list for assistance:

- [Basic Needs Hub](#)
- **Portland State Food Pantry:** psufp.com or pantry@pdx.edu
- [C.A.R.E. Program](#): (503) 725-4422
- [Student Health & Counseling](#): (503) 725-2800

Understanding Sexual Misconduct

PSU desires to create a safe campus. As part of that mission, PSU requires all students to take the [Understanding Sexual Misconduct and Resources learning module](#). If you or someone you know has been harassed or assaulted, you can find the appropriate resources on PSU's [Sexual Misconduct Response website](#).

Title IX

Reporting Students frequently come to me for assistance in matters not related to the course material. Please be aware that PSU's policies require instructors to report any instance of sexual harassment, sexual and relationship violence and/or other forms of prohibited discrimination to university officials, who will keep the information private. If you would rather share information about these matters with a PSU staff member who does not have these reporting responsibilities and can keep the information confidential, please use these campus resources: Econ 321 TR 10-11:50 Cramer Hall 401

- Confidential Advocates: 503-894-7982 or [schedule online](#) (for matters regarding sexual harassment and sexual and relationship violence)
- Center for Student Health and Counseling: 1880 SW 6th Avenue #200; 503-725-2800 Discrimination and Bias Incidents

[The Office of Equity and Compliance \(OEC\)](#) addresses complaints of discrimination, discriminatory Harassment, and sexual harassment against employees (faculty and staff). If you or someone you know believes they have been discriminated against, you may file a complaint. Someone from the OEC will contact you to discuss how to best address your complaint.

[The Bias Review Team \(BRT\)](#) gathers information on bias incidents that happen on and around campus, and gives resources and support to individuals who experience them. You can report a bias incident you experienced or learned about. A member of the BRT will contact you if you indicate you would like to be contacted.

Religious Accommodations

If you would like to obtain religious accommodations, such as flexibility in attending evening courses or extension on assignments, please contact your instructors. If you need additional assistance, please contact [the Office of the Dean of Student Life \(DOSL\)](#).

Cultural Resource Centers

Cultural Resource Centers (CRCs) create a student-centered inclusive environment that enriches the university experience. They honor diversity, explore social justice issues, celebrate cultural traditions, and foster student identities, success, and leadership. They provide opportunities for student leadership, employment, and volunteering; student resources such as computer labs, event, lounge, and study spaces; and extensive programming. All are welcome!

- Multicultural Student Center
- La Casa Latina Student Center

- Native American Student and Community Center
- Pan African Commons
- Pacific Islander, Asian, and Asian American Student Center
- Middle East, North Africa, South Asia Initiative

Course Schedule

The topics listed in this schedule are tentative and may change over the course of the semester. The exam dates, however, will not change.

Week	Tuesday	Thursday
Week 1, January 8-14	Introduction to the Class and Thinking about games, Ch 1 and Ch 2	Games with Sequential Moves, Chapter 3
Week 2, January 15-21	Games with Simultaneous Discrete Moves, Chapter 4	Games with Simultaneous Continuous Strategies, Chapter 5
Week 3, January 22-28	Mixed Games and Mixed Strategies, Chapter 6 & Chapter 7	Mixed Strategy Games, Chapter 7
Week 4, January 29- February 4	Review and Overflow Day	First Midterm
Week 5, February 5-11	Strategic Moves, Chapter 8	Uncertainty and Information, Chapter 9
Week 6, February 12-18	Uncertainty and Information, Chapter 9	The Prisoner's Dilemma, Chapter 10
Week 7, February 19-25	Collective Action Games, Chapter 11	Collective Action Games, Chapter 11
Week 8, February 26- March 3	Review and Overflow Day	Second Midterm
Week 9, March 4-10	Evolutionary Games, Chapter 12	Incentive Design, Chapter 14
Week 10, March 11-17	Auctions, Chapter 15	Review of the course
Final Week March 18-24	Our final is Tuesday, March 19 from 10:15 a.m. – 12:05 p.m.	n/a