

EC 427 Games & Decisions

Summer 2021

Department of Economics, University of
Oregon

Instructor: Ethan Holdahl (email: eholdahl@uoregon.edu)

Course Website: Canvas: [EC 427 \(Summer 2021; 41345\) Games & Decisions \(uoregon.edu\)](#)

Time and Location: Monday-Thursday 10:00am-11:50am, on Zoom: [EC 427 \(Summer 2021; 41345\) Games & Decisions + Office Hours](#)

Office Location and Hours:

12pm-12:30pm Monday-Thursday or by appointment. Note: I'm happy to extend office hours for as long as students would like. Regularly scheduled office hours will take place in the same Zoom link as class.

Overview

Game theory is a discipline that provides a mathematical methodology for modeling and analyzing interactive decisions among multiple agents. Game theory has a wide range of applications in economics, political science, anthropology, biology, computer science and etc.

In the course, we will use mathematical notations, some algebra, calculus, and basic probability theory. Definitions will be stated formally, and arguments will be developed rigorously. I hope that by taking this course, you can develop an understanding of what constitutes a good mathematical model for addressing an economic question.

Prerequisites

EC311 (Intermediate Microeconomic Theory) and EC 320 (Introduction to Econometrics) are pre-requisites for this course. If you have not passed these prerequisites prior to the start of the term, you must drop the course unless you have explicit written permission from me to take it. If you do not drop the course and do not have permission to take it, you will be given an F for this class. In addition to the required prerequisites, it is strongly recommended that you take calculus (at least MATH 241) before you take EC 427/527, as this course will use differentiation.

Assignments and Grading

Homework: There will be two homework sets due at the start of class on the second and fourth Tuesdays of the term. Questions will be assigned to the current homework set daily as we cover the relevant material. You are encouraged to work in groups to complete the homework. However, each person must submit their own assignment. Late Homework will be accepted at a 20% penalty.

Exams: There is one midterm (July 1st) and a final exam (July 15th). Both of which will have an in class and out of class component.

Grades: Your grade for this course will be based on the two exams and the homework assignments. The components of your grade will be weighted as follows:

Midterm	40%
Final	40%
Homework	20%

Grading Policies: No makeup exams will be given. In the case of a missed midterm due to unanticipated emergency situations, the student will be allowed to put the weight of the missed exam on the final exam, provided I am notified as soon as possible. A missed final due to an unanticipated emergency will be handled with an “incomplete” for the course, assuming that I agree the situation represents an unanticipated emergency. Be aware that that the Registrar will automatically convert a grade of “incomplete” to an F after one calendar year. Do not take this class if you already know you cannot make one of the scheduled exams.

Grading will be consistent with the typical distribution for economics classes.

Academic Dishonesty Policy: Academic dishonesty (from plagiarizing work to cheating on exams) will not be tolerated. Please acquaint yourself with the Student Conduct Code, which is published in the Schedule of Classes each term.

Students with Disabilities: If you have a documented disability and anticipate needing accommodations in this course, please make arrangements with me during the first week of the term. Please request that the counselor for students with disabilities (164 Oregon Hall) sends me a letter verifying your disability.

Student Athletes: If you are a student athlete and will need special accommodations, it is your responsibility to notify me in a timely and appropriate manner, and to support your request for special accommodations by providing appropriate documentation.

Recommended Texts

The textbook is optional, though I encourage you to purchase one.

- Martin J. Osborne “An Introduction to Game Theory,” Oxford University Press, 2004. ISBN 0-19-512895-8.

Tentative Course Outline

Unit 1: Preferences, utility, and rationality

Unit 2: Dominance, iterated dominance, and rationalizability

Unit 3: Pure strategy Nash equilibrium

Unit 4: Mixed strategy Nash equilibrium and the minmax theorem

Unit 5: Bayesian games

Unit 6: Extensive form games with perfect information

Unit 7: Extensive form games with imperfect information

Unit 8: Repeated games

University Policies:

Accessibility: The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center in 155 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu.

Academic Integrity: Academic Misconduct: The University Student Conduct Code (available at conduct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students' obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at researchguides.uoregon.edu/citing-plagiarism. -From the Office of the Dean of Students

Prohibited Discrimination and Harassment Reporting: The UO is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic and dating violence and gender-based stalking. If you (or someone you know) has experienced or experiences gender-based violence (intimate partner violence, attempted or completed sexual assault, harassment, coercion, stalking, etc.), know that you are not alone. UO has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more.

Please be aware that all UO employees are required reporters. This means that if you tell me about a situation, I may have to report the information to my supervisor or the Office of Affirmative Action and Equal Opportunity. Although I have to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

Any student who has experienced sexual assault, relationship violence, sex or gender-based bullying, stalking, and/or sexual harassment may seek resources and help at safe.uoregon.edu. To get help by phone, a student can also call either the UO's 24-hour hotline at 541-346-7244 [SAFE], or the non-confidential Title IX Coordinator at 541-346-8136. From the SAFE website, students may also connect to Callisto, a confidential, third-party reporting site that is not a part of the

university.

Students experiencing any other form of prohibited discrimination or harassment can find information at respect.uoregon.edu or aaeo.uoregon.edu or contact the non-confidential AAEO office at 541-346-3123 or the Dean of Students Office at 541-346-3216 for help. As UO policy has different reporting requirements based on the nature of the reported harassment or discrimination, additional information about reporting requirements for discrimination or harassment unrelated to sexual assault, relationship violence, sex or gender-based bullying, stalking, and/or sexual harassment is available at Discrimination & Harassment.

Specific details about confidentiality of information and reporting obligations of employees can be found at titleix.uoregon.edu.

Mandatory Reporting of Child Abuse: UO employees, including faculty, staff, and GEs, are mandatory reporters of child abuse. This statement is to advise you that your disclosure of information about child abuse to a UO employee may trigger the UO employee's duty to report that information to the designated authorities.

Diversity: The University of Oregon is dedicated to the principles of equal opportunity and freedom from unfair discrimination for all members of the university community and an acceptance of true diversity as an affirmation of individual identity within a welcoming community. This course is committed to upholding these principles by encouraging the exploration, engagement, and expression of distinct perspectives and diverse identities.

All of us associated with the course—you included—are expected to value each class member's experiences and contributions and to communicate disagreements respectfully. Please notify me if you feel aspects of the course undermine these principles in any way. You may also notify the Department of Economics at 541-346-8845. For additional assistance and resources, you are also encouraged to contact the following campus services:

- Office of Equity and Inclusion: 1 Johnson Hall | 541-346-3175 | oied.uoregon.edu
- Center on Diversity and Community: 54 Susan Campbell Hall | 541-346-3212 | codac.uoregon.edu
- Bias Response Team: 164 Oregon Hall | 541-346-1134 | brt@uoregon.edu | bias.uoregon.edu

Basic Needs

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course is urged to contact the Dean of Students Office (346-3216, 164 Oregon Hall) for support.

This UO webpage includes resources for food, housing, healthcare, childcare, transportation, technology, finances, and legal support: <https://blogs.uoregon.edu/basicneeds/food/>