Game Theory & Applications

ECO 4400

Instructor Info

Dr. Fatma B. Gunay

Office Hrs: M &W 2:30-3:30pm (on Zoom)

MAT 327

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Course Info

Prereq: ECO 2023, ECO 3101 or ECP 3703, and Calculus

Mon, Tues & Wed

11am-1:45pm

Youtube

Practice Info

Thursday

11am-12:15pm

Zoom

TA Info

Dilan Alpergin

Office Hrs: TBA

Zoom

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Overview

This course provides a detailed introduction to Game Theory and its applications. We will start with the basic concepts and insights of game-theoretic reasoning. The first 2 weeks of the course is devoted to the introduction of the standard ways of representing games and to the discussion of the meaning of a strategy in different types of games. Once we cover the basics of game theory, we will dive deep into the applications of game theory to different fields. Some of the applications we will analyze are the Cuban missile crisis, insurance provision, contract design, price discrimination, and competition in oligopolies.

Material

Required Texts

Avinash K. Dixit, Susan Skeath & David H. Reiley. *Games of Strategy* . 4th Edition. WWNorton.

Recommended Text

Joel Watson. *An Introduction to Game Theory*. 3rd Edition. WWNorton. (it has lots of practice problems)

Avinash K. Dixit & Barry J. Nalebuff *The Art of Strategy: A Game Theorist's Guide to Success in Business and Life*. WWNorton.(very good book on real life applications of game theory)

Lectures

ECO4400 Game Theory is an 100% online course. We will have a combination of synchronous and asynchronous lectures. All lectures (synchronous and asynchronous) will be posted on youtube. I will share the links to the lectures on Canvas. The videos will be topic by topic. I am planning to keep the duration of each video less than 20 minutes. Hence, everyday you will have multiple lectures to watch.

Synchronous lectures will be on Zoom at : https://ufl.zoom.us/j/98059722932

Exam Policies

There will be 3 online exams. We will be using HonorLock. Honorlock no longer supports Windows 8, Windows 8.1, Mac OSX 10.11 and Mac OSX 10.12. Please test your system at honorlock. For more information about using honorlock, please check our course Canvas page.

We will practice the Honorlock system before each exam to make sure that you know how to use the it. During the exam, for the problems, you will have to download a file (take a print out, or work on your separate sheet of paper) and upload it back to Honorlock

The exams are on July7th, July 21st, and August 4th. The exams are not comprehensive and include multiple choice questions, short answer questions as well as problems. I will provide practice tests before the exams.

During exams, students may use a simple scientific calculator (not a calculator with graphing abilities), and a 1-sided 3x5 cheat sheet.

Make-up exams will only be allowed for students who have a substantiated excuse approved by the instructor *before the due date*. When academic or religious conflicts exist or emergencies arise, make-up exams may be provided.

Grading Scheme

60%	Exams, 20% each
25%	Homework Assignments
15%	Quizzes

Grades will follow the following scale. Curving is at the discretion of the professor.

Points	Grade
92.50 and above	A
90-92.49	A-
87.5-89.99	B+
82.5-87.49	B
80-82.49	B-
77.5-79.99	C
72.50-77.49	C-
70.00-72.49	D
0-69.99	E

Pop-Quizzes

There will be a pop-up quiz each week during a synchronous lecture, which include the topic covered during the lecture. You have to be present in the synchronous lecture to be able to access the quiz. The questions are designed in such a way that following the online lectures is enough to get a 100%. You just need to pay attention to the lecture. At the end of the semester, I will drop the lowest grade out of these quizzes.

Assignments

There will be an homework assignment each week. I will post them on Thursday afternoons. They are due on Monday at 9am. Assignments will be posted on Canvas. When you finish your work, you will upload a single PDF document. At the end of the semester, I will drop the lowest grade.

Accommodations for Students with Disabilities

If you have a disability and need accommodations please be sure to contact the Disability Resource Center right away so they can help you get the accommodations you require. If you will need to use any accommodations in this class, please talk with me early so you can have the best possible experience this semester. For more specific information visit https://disability.ufl.edu

Academic Integrity

The University of Florida maintains high standards for academic integrity in order to provide the students the best quality education. An online copy of the academic honor policy can be found at Student Honor Code. Students are expected to be familiar with the Code and to recognize that their work in the course is to be their own original work that truthfully represents the time and effort applied.

Class Schedule

*Tentative

Week 1	Introduction	Chapter 1 (DSR)
	Initial Concepts, Classification of Games, Definitions	Chapter 2 (DSR)
	Games with Sequential Moves	Chapter 3 (DSR)
	Game Representation, Specification of Strategies	
	Backward Induction, Mover Advantage	
Week 2	Games with Simultaneous Moves	Chapter 4 (DSR)
	Game Representation, Equilibrium Concepts, Games	
	with Multiple Equilibrium. Discrete Strategies	
	Simultaneous Move Games with Mixed Strategies	Chapters 7(DSR)
	EXAM I	
Week 3	Games with Simultaneous Moves	Chapter 5 (DSR)
	Game Representation, Equilibrium Concepts, Games	
	with Multiple Equilibrium. Continuous Strategies	
Week 4	Simultaneous and Sequential Move Games	Chapter 6 (DSR)
	Converting Extensive Form Games to Strategic Form,	
	Combining Simultaneous and Sequential Moves,	
	Subgame Perfection, Games of Perfect and Imperfect Information	
	Uncertainty and Information	Chapter 8 (DSR)
	EXAM II	
Week 5	Repeated Games	Chapter 10 (DSR)
	Stage Games, Finite Repetition, and Infinitely Repeated Games, Folk Theorem	
Week 6	Mechanism Design	Chapter 13 (DSR)
	The Theory of Auctions and Competitive Bidding	Chapter 16 (DSR)
	EXAM III	