



# Game Theory & Applications

ECO 6409

## Instructor Info



Dr. Fatma B. Gunay



Office Hrs: Mon & Wed 10:30am - 11:30am



MAT327



fgunay@ufl.edu

## Course Info



Jan 9 - February 24



Monday, Wednesday



11:45am - 1:40pm



LEIGH142

## TA Info



Qiushi Hua



Office Hrs: Friday 3:30pm - 4:30pm



office



huaqiushi@ufl.edu

## 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 (as time permits) 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 or 5th Edition. WWNorton.

Avinash K. Dixit & Barry J. Nalebuff *The Art of Strategy: A Game Theorist's Guide to Success in Business and Life*. WWNorton.

Any required journal articles will be provided on Canvas.

## Lectures

ECP6409 Game Theory Applied to Business Decisions is an on-campus class. But, lectures from previous semesters will be posted on Canvas for review purposes. I will share the links to the videos on Canvas. The videos will be topic by topic. I am planning to keep the duration of each video less than 30 minutes. Lecture videos are not perfect substitutes for the in-class lectures. You are expected to attend the in-class lectures.

As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

## Exam Policies

There will be 2 in-class exams. The exams are on January 30th and February 22nd during the official class time. 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. All students have to take the exams in-class.

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.

Exams will be graded within a week and the results will be announced on Canvas.

## Grading Scheme

50%	Exams, 25% each
20%	Homework Assignments
15%	Quizzes
15%	Group Homework

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

Points	Grade
95 and above	A
90-94.99	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

## Quizzes

There will be weekly quizzes each week (either on Monday or Wednesday in-class, but accessible over Canvas during the class time), which include the topic covered during the week. The questions are designed in such a way that following the 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 6 quizzes.

Our TA, Qiushi, will grade your quiz within a week of submission and give you a feedback.

## Assignments

There will be an homework assignment each week. I will post them on Wednesday afternoons. They are due on Monday at 9am. Assignments will be posted on Canvas. Please follow the instructions on Canvas to submit your assignment. I will drop the lowest grade out the 6 assignments.

## Group Homework

There will be a group homework due on February 20th. You will have approximately one week to work on it. You will work in groups of 4 or 5. Students must determine their group members before the announcement of the group homework questions. If you need help to find a group, please email Qiushi, so that he places you in a group.

## 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.

You are not allowed to receive any outside help including the use of online tutoring websites. Keep in mind that all these websites (I am not stating the names here) are willing to share their user information with universities. The following is directly from one of these websites:

If you have concerns that students may be using our products inappropriately, ..... is here to work with you and address your concerns. We will cooperate with any official investigation by an academic instruction.

I would like to remind you one more time that the Honor Pledge below applies to any course work you are assigned:

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

On all work submitted for credit by students at the university, the following pledge is either required or implied: On my honor, I have neither given nor received unauthorized aid in doing this assignment.

## Diversity and Inclusion

I would like to create a learning environment for my students that supports different perspectives, thoughts, experiences, and identities. To help me accomplish this, please let me know if you have a name / set of pronouns that differ from the official UF records. If you believe that your performance in the classroom is being affected by outside factors, do not hesitate to contact me in person, electronically or even anonymously.

## Course Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via [ufl.bluera.com/ufl/](https://ufl.bluera.com/ufl/). Summaries of course evaluation results are available online.

## Use of Course Materials

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

## Class Schedule

DATE	TOPICS	READINGS	ASSESSMENTS
Week 1 (1/9-1/15)	Introduction Prisoners' Dilemma Game Fundamentals	Ch 1 (DN) Ch 1, 2 (DSR) Reading 1 Worksheet 1	HW1, Quiz1
Week 2 (1/16-1/22)	Sequential Move Games	Ch 2 (DN) Ch 3 (DSR) Reading 2 Worksheet 2	HW2, Quiz2
Week 3 (1/23-1/29)	Simultaneous Move Games; Dominant / Dominated Strategies Nash Equilibrium	Ch 3,4 (DN) Ch 4 (DSR) Worksheet 3	HW3, Quiz3
1/30	EXAM I		
Week 4 (1/30-2/5)	Multiplicity of Equilibria Coordination Games Randomization and Mixed Strategies	Ch 5,9 (DN) Ch 7 (DSR) Worksheet 4	HW4, Quiz4
Week 5 (2/6-2/12)	Repeated Prisoners' Dilemma Reputation	Ch 10 (DSR) Worksheet 5	HW5, Quiz5
Week 6 (2/13-2/19)	Applications	Ch 6 (DN) Ch 7 (DN) Reading 3 Worksheet 6	HW6, Quiz6 Group HW
Week 7 (2/20-2/24)	Review		
2/22	EXAM 2		