

ECON 201: Games and Strategies

Dr. Emine Deniz

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Office Hours: T: 10:00 - 12:00 or by appointment

Class Hours: M: 9:40-10:30
W: 2:40 - 4:30

Office: FASS 2033

Class Room: M: FASS 1079
W: FASS 2023

TA: Muhammed Dönmez

Recitation Hours : F: 2:40-3:30

Office:FASS 2085

Recitation Room: FASS 1075

Office Hours: M: 10:40-11:30
W:16:40-17:30

Course Description

Game theory studies strategic interaction(s) between two or more *rational* actors/players. To find the best course of action in a situation where others are involved, a decision maker needs to consider others' actions, beliefs, thinking, payoffs, and how her behavior affects all of these. In the words of game theorist extraordinaire Jack Bristow of *Alias*¹, a game-theoretically sound strategy "[...] compels both sides to adopt a mutually reinforcing course of action."

Game theory emphasizes the role of conflicting or shared goals, timing, private information, and its manipulation in determining outcomes. This course introduces some of the main topics and analytic tools of game theory, emphasizing the need to gain a practical understanding.

At the end of the course, you should be able to formalize a strategic situation as a well-defined game; choose appropriately from a basic kit of analytic tools, called solution concepts, to analyze

¹Alias is a TV series that ran from 2001 to 2006. It features father-daughter double agents trying to take down a criminal organization.

and solve various games and applications and understand the assumptions underlying these concepts and their strengths and limitations.

Required and Recommended Materials

There are 2 books for this course; none is required, and both are highly recommended. Both books are available at the Information Center and can be downloaded/purchased online.

- Watson, Joel *Strategy: An Introduction to Game Theory*, 3rd edition
- Osborne, Martin J. *An introduction to game theory*. Vol. 3, no. 3. New York: Oxford University press, 2004.

Prerequisites

While the emphasis is on the practical, a solid understanding of game theory requires some mathematical sophistication. You should have some experience with basic probability theory and calculus. More importantly, you should be used to thinking analytically and in mathematical terms.

Course Structure

Class Structure

This is an introductory course and I will be lecturing. According to the Socratic teaching method, I will cold call and ask questions in class.

Assessments

You must attend classes and actively participate in class discussions, which is the key ingredient to a successful learning experience and to your class participation grade. There will be homework assignments. You can submit your homework as a group of (up to) three students. The teaching assistant will solve homework questions in the following recitation. The midterm exam will be held on April 3, Wednesday in class.

- 7 homework assignments: 35 %
- Class Attendance: 15 %
 - 50 percent of your grade will be from attendance; the remaining 50 percent will be from the pop quizzes I will do unannounced and randomly in class.
- Midterm Exam: 25 %
- Comprehensive Final Exam: 25 %

Course Policies

During Class

I understand that the electronic recording of notes will be important for class, so computers will be allowed in class. Please refrain from using computers for anything but activities related to the class. Phones are prohibited as they are rarely useful for anything in the course. Eating and drinking are allowed in class, but please avoid affecting the course. Try not to eat your lunch in class, as classes are typically active.

Grading Policy

There is no explicit, preordained curve or distribution for letter grades. Instead, I will assess to what extent you have mastered the material, given the final average you have maintained. If more people in the class show me that they have learned the material well, I will give out more A's. Importantly, this means that one person's success does not lower someone else's grade. Thus, you should view studying and working on problem sets for this class as a collaborative rather than a competitive endeavor. For borderline cases, factors such as effort, participation, and improvement are taken into account.

I will try to return your graded problem sets and midterms no more than one week after you turn them in. We are human, just like you, and occasionally we make mistakes. When you receive something back, please immediately check for errors in the tallied score. If I have added your score incorrectly, you may bring that to my attention on the spot (or at the end of class), and I will fix it.

On the other hand, if you believe that a specific question on a problem set or midterm has been graded unfairly or in error, you may submit a request in writing on a separate piece of paper, explaining exactly what the problem is and why you believe that you deserve more credit than you have received. No verbal arguments will be considered. After carefully reading your request and rereading your original answer, I may revise your grade either upward or downward; there is no guarantee that your grade will change.

Important: You have one week after your work is returned to make this request, and once you take the paper out of the classroom, no requests will be accepted. You must return your paper to me for more time to request. You can access it again during office hours. Finally, you can submit at most two requests per semester.

Policies on Late Assignments

Late assignments will be accepted without penalty if a valid excuse is communicated to the instructor before the deadline. Late assignments without valid excuse or with valid excuse provided after the deadline will be accepted for a one-letter grade per day penalty.

Attendance Policy

Attendance is **mandatory** in all lectures. Valid excuses for absence will be accepted before class. In extenuating circumstances, valid excuses with proof will be accepted after class. The participation grade will be dropped by 1 point for every missed class.

Exam Policy

All exams are in class. Unless I announce otherwise, all exams are closed book, with only pen and paper allowed. You will be asked to turn off all electronic devices (and make sure that your seats and tray tables are in the upright and locked position).

Make-up exams are granted only in the event of a valid and documented reason (in which case the instructor reserves the right to choose between a make-up exam and a transfer of the midterm credits to the final exam). Absence in exams without any valid documented reason will result in a 0. In case of an illness, the student must provide a formal doctor's note from a hospital within 5 business days. (A doctor's note taken from a doctor's private practice does not count as formal.) In the case of private hospitals, the doctor's note has to be verified by the university health service within five business days.

Academic Integrity and Honesty

Students are required to comply with the university policy on academic integrity: **Academic Honesty and Plagiarism.**

Accommodations

Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of Sabanci University policy and will not be tolerated.

Harassment of any person (either in the form of quid pro quo or the creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is also a violation of Sabanci University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited.

Please feel free to alert the professor about your preferred pronouns. It is also okay to change your preferred pronouns throughout the quarter. The professor's preferred pronouns are she/her.

Important Dates

First Class	Monday 19/2
Midterm	Wednesday 3/4, in class
No Class	Monday 8/4 and Wednesday 10/4
PS 1	Friday 1/3
PS 1 due	Friday 15/3
PS 2	Friday 8/3
PS 2 due	Friday 22/3
PS 3	Friday 22/3
PS 3 due	Friday 5/4
PS 4	Friday 29/3
PS 4 due	Friday 19/4
PS 5	Monday 19/4
PS 5 due	Friday 3/5
PS 6	Friday 26/4
PS 6 due	Friday 10/5
PS 7	Monday 3/5
PS 7 due	17/5
Final Exam	TBA

Tentative Course Outline

Topic	Textbook Chapter
<i>Representing Games</i>	
Extensive form, strategies	1-3
Normal form, beliefs/mixed strategies	4-5
<i>Static Games</i>	
Best response, rationalizability, applications	6-8
Equilibrium, applications	9-10
Mixed strategy equilibrium	11
Strictly competitive games	12
Contract and law	13
MIDTERM	
<i>Dynamic Games</i>	
Extensive forms and subgame perfection	14-15
Applications: IO and parlor games	16-17
Bargaining games	19
Repeated games and applications	22- 23
<i>Incomplete Information Games</i>	
Random events and incomplete information	24, Appendix A
Bayesian-Nash equilibrium, applications	26-27
PBE, signaling, reputation	28-29
Risk and Incentives (Moral Hazard)	25