AGU Faculty of Managerial Sciences
Department of Economics
Strategic Thinking
ECON521

INSTRUCTOR(S)/TA(s) RECORD

Name	Umut Türk
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TA(s) name	Gülcan Doğanay
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Office Hours	In response to the developing situation with covid-19, Office Hours for fall will take place online only via zoom. Please contact me or TA via email to arrange one

COURSE RECORD

Code	ECON521
Name	Strategic Thinking
Hour per week	3
Credit	3
ECTS	5
Level/Year	Graduate
Semester	Fall
Type	Elective
Classroom	Zoom
Prerequisites	Mathematics
Special Conditions	Suggestion: You should have 1. A stable internet connection for the synchronous Zoom sessions. 2. A stable computer 3. Access to CANVAS and Zoom
Webpage	All communications will be operated on CANVAS Course Website. You will access the course syllabus, course materials including lecture notes, links to related websites, assignments, articles, etc from CANVAS. You are responsible to check Canvas on a regular basis. Information about exams and assignment grades will also be available on Canvas.
Content	The course covers the fundamentals of equilibrium concepts in the games of complete and incomplete information. The course covers the following topics: Solving Sequential Games Using Backward Induction, The Concept of Nash Equilibrium, The Concept of Pareto-Efficiency, Best-Response Analysis Maximin-Minimax Method for Zero-Sum Games, Nash Equilibrium and Sub-Game Perfect Equilibrium in Sequential Games, Solving Games with Sequential and Simultaneous Moves.
Objectives	Understanding the complex theories and theoretical contributions to equilibrium concepts -such as Game Theory- is tremendously important as economists, planners, biologists and engineers are integrating these theories in their own fields. Nowadays, Data scientists and ICT firms have access to tremendous amount of information in the form of big data. However, selecting the best informative data and methods to process information heavily depends on theories and research questions posed based on these theories. This course offers an advanced approach to game theory and Nash equilibrium concept with timely references to real life examples that apply to various disciplines. We aim to construct a game theoretical platform which not only affords us a playing field where we reconstruct well known games from tennis to chess but also a solid basis for understanding complex phenomena in our daily lives and fields of expertise.

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Learning Outcomes	LO1: By the end of this course, you will be able to develop games out of scenarios where any interaction takes place between individuals, firms or machines by constructing decision trees or matrices. LO2: You will be able to formulate basic games and analyze them in such a way to predict outcomes. LO3: You will be able to integrate theories you learn to data and analytical frameworks. LO4: As the nature of the course is multidisciplinary, you will be able search and find game theoretical studies that are relevant to your thesis.
Teaching Methodology	In response to the developing situation with covid-19, our course will be offered in an online format. For asynchronous sessions CANVAS and for synchronous sessions Zoom will be used. We will use various tools for active learning to take place. This is very much a student-driven course. You are expected to participate actively in class discussions and bring your own examples that you find interesting for a study of game theory. You are not graded on whether you agree or disagree with the instructor or with each other. You are particularly encouraged to challenge your instructor. Evaluation of class participation will be based on your ability to rise and answer important issues, to contribute ideas or insights, to build upon the ideas of others, ask questions to presenters. By actively participating in the class discussions, you can sharpen your insights, and those of your classmates. Both the quality and frequency of your participation will count towards your active participation grade. Please note that high-quality or relevant contribution will earn you a higher participation grade than frequent but insignificant contribution.
Reading List	Osborne, M.J. An Introduction to Game Theory. Oxford University Press (2004), Chapters 2, 4, 5, 11, 12. Leyton-Brown, K., & Shoham, Y. Essentials of game theory: A concise multidisciplinary introduction. Synthesis lectures on artificial intelligence and machine learning.
Recommended Readings	Will be posted weekly to CANVAS
Recommended Websites	Will be posted weekly to CANVAS

COURSE POLICIES

Late Submissions	All of the assignments are due at the scheduled dates and times. Please mark your calendar for all due dates and follow the announcements about the assignments. **Late assignments receive a 10% deduction for each day they are late. After 5 days, the assignments will not be accepted.**
Communication	Please check your AGU e-mail for the announcements. All of the messages and announcements will be sent via CANVAS to your AGÜ e-mail addresses. Therefore, it is the responsibility of every student to read his/her official university email address and check the CANVAS regularly. When contacting the instructor, please use your AGU account and include in the subject line the course code ECON521.
Attendance Policy	Students are expected to attend all asynchronous / synchronous activities. Student absences in excess of 3 weeks (4 or more) of synchronous times will result in automatic failure in the course. It is your responsibility to come to class **on time**. Students with medical reports, you need to submit the paperwork to your deanship of faculty in 5 days following the last day of the sick leave. (refer to: Section 27 at https://goo.gl/HbPM2y). Absence due to medical reasons cannot exceed 3 weeks.

	It is the responsibility of each student to keep track of how you are doing on class participation by checking with the instructor several times during the semester. For a detailed description of AGU attendance policy, please refer to the website at https://goo.gl/HbPM2y section 25.
Academic Integrity	Students are obliged to refrain from acts that they know or, under the circumstances, have reason to believe, will impair the integrity of the university or others. Violations of academic integrity include, but are not limited to, cheating, plagiarism, unauthorized multiple submissions or copying and using somebody else's paper/assignment. Any of these violations will be investigated by the discipline committee and may cause expulsion of the student from the University.
Ethical Rules	• English should be used at all times to communicate with one another during the a / synchronous hours. • Please, respect the allotted times provided for breaks. • Distractive tools such as cell phones must be turned off and put away during the synchronous hours. • In synchronous hours, computers should not be used to surf on the web or conducting personal business. • Personal business should be done outside of the synchronous hours on your own time, where it does not interfere with the learning environment of your fellow students. • Please be prepared, having read, written, watched and studied the assigned lessons, articles, passages, or videos before the course sessions. • Please be ready to submit assignments on time • And most importantly please prepare to work cooperatively with other students. *For the AGU Make-up policy, please refer to the website https://goo.gl/HbPM2y section 26.*
Cheating & Plagiarism	You are responsible for knowing the University policies on cheating and plagiarism. Not giving credit to a person for their intellectual work and passing it off as your own is stealing. Specifically: • Copying or allowing someone to copy your work on an exam, homework, or in class assignment is cheating. • Cutting and pasting material from the web or any other electronic source is plagiarism. • Copying and turning in the same assignment as someone else, from this class or from another class, is cheating. Unless explicitly told otherwise, you can discuss and problem- solve on homework together but the final product has to be your own – not just your own handwriting but your own way of explaining and organizing your ideas. • Making superficial changes (minor additions, deletions, word changes, tense changes, etc) to material obtained from another person, the web, a book, magazine, song, etc. and not citing the work, is plagiarism. The idea is the intellectual property, not the specific format in which it appears (e.g., you wouldn't reword Einstein's theory of relativity and imply that relativity was your own idea, would you?) • If you find material and it is exactly what you are trying to say, or you want to discuss someone's idea, give the person credit and cite it appropriately. Don't overuse citations and quotes: instructors want to know how you think and reason, not how someone else does.

	• If you have any questions or concerns about whether your behavior could be interpreted as plagiarism, please ask the assistants or instructors before you submit the work. *For a detailed description of AGU policies, please refer to the website at https://goo.gl/FjLhzH*
Flexibility	A tentative schedule for the entire semester is included in this syllabus. Although much thought and planning were put into the course schedule included in the syllabus, the schedule is tentative and subject to change as necessary to adapt to the specific needs of the class. Occasional departures from the schedule, such as additional readings, assignments, and activities, may be announced in class or via canvas during the semester. Therefore, it is each student's responsibility to be in class, on time, and paying attention in order to keep up-to-date with whatever changes are made in the schedule.
Feedback	Your comments and suggestions are very important and will be taken into consideration during the course. Please do not hesitate to provide feedback about the course. You can give your feedback during the class, at office hours, or through e-mail. In addition, with the assistance of Teaching and Learning Center we will run mid-term and end of term feedbacks.

LEARNING ACTIVITIES

Activities	**Number**	**Weight (%)**
Zoom Synchronous meeting (Attendance)	14	40%
Asynchronous Activities (discussion board, pre-readings, etc)	14	40%
Active participation	14	20%
	TOTAL	100%

ASSESSMENT

Evaluation Criteria	**Weight** (%)
Weekly pre-activities (discussion board, readings, videos, etc.) Active Participation	15%
Weekly assignments	20%
Team Project Assignments & Presentations	25%
Final Exam/Oral Exam	50%
Total	100%

For a detailed description of grading policy and scale, please refer to the website https://goo.gl/HbPM2y section 28.

COURSE LOAD

Activity	**Duration** (hour)	**Quantity**	**Work Load** (hour)
In class activities	1	14	14
Pre- class activities	1	14	14
Team work / project	14	1	14
Research (web, library)	2	12	24
Required Readings	2	10	20
Lab reports	1	7	7
		General Sum	**93**

ECTS: 4 (Work Load/25-30) As an example the workload is 93hr. 93 /25-30

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CONTRIBUTION TO PROGRAMME OUTCOMES*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
LO1	1	2	4	4	3	5	5	2	3	5
LO2	1	2	4	1	1	5	5	2	2	3
LO3	5	5	3	5	5	1	5	3	5	3
LO4	5	5	3	5	5	1	5	3	5	3

* Contribution Level: 0: None, 1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High

WEEKLY SCHEDULE

W	Topic	Outcomes
1	Introduction to Strategic Thinking. Game Theory	LO1, LO2?
2	Optimal Strategy, Dominance	
3	Solution Concepts: Pareto Optimality and Nash Equilibrium	
4	Strategic Games and Focal Points	
5	Mixed Strategies	
6	Mixing when one player has three of more strategies	
7	Games with Continuous Strategies	
8	Games with Sequential Moves Activity: The game of market entry	
9	Sum-Game Perfect Equilibrium	
10	Bayesian Games	
11	Perfect Bayesian Equilibrium, Signalling Games	
12	Theory of Bargaining	
13	Paper Discussions	
14	Paper Discussions	