ECON607 - Game Theory - Spring 2021
Sabanci University – Faculty of Arts and Social Sciences
(updated on 24/02/2021)

Course Information

Instructor: Mehmet Barlo
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Office Hours: By appointment.
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web-page: SUCourse
Class: The details are as follows:

- The **first** part of the course (approximately the first 7 weeks of the semester) will be static with synchronous meetings on Wednesdays 16:40 – 17:30 at Zoom.

- The **second** part will consist of synchronous meetings on Wednesdays. Our default is Wednesdays 14:40 – 17:30 at Zoom, which may be subject to change if agreed unanimously in the class.

Course Objectives

The goal of this course is to work on formal models of non-cooperative games and implementation. The particular emphasis will be on (full) implementation and its extensions to bounded rationality.

Background

The students should have taken a master's level of microeconomics course and be familiar with basic notions of mathematical analysis.

Texts

- Lecture notes to be sent via the SU Course system.

- Various papers to be sent via the SU Course system

Course Content & Methodology

Due to the decision of Sabancı University, **our course will be conducted online**. Using modifications based on students' suggestions from previous online courses, the details of the *hybrid* system I intend to employ emerge as follows:

- The course features two parts. In the **first part**, I will lecture on the subject of game theory, establishing the required foundation that will be used in the second part of the course on implementation. The list/order of subjects to be covered in the first part is:

    I. **Games of normal form under perfect information**

    Definitions, modeling strategic situations of one-shot nature. *Individualistic* **rationality** considerations: Rationality axioms, the expected utility theorem, and mixed strategies; strict domination, iterated elimination of strictly dominated strategies, weak domination, and rationalizability. Best responses and Nash equilibrium, existence, examples. Non-stability of Nash equilibrium, refinements such as (trembling hand) perfect equilibrium, and others.

    II. **Games of extensive form**

    Definitions, modeling of strategic interactions involving a sequence of moves, behavioral strategies, Kuhn's theorem, subgame perfect equilibrium, and examples.

- In the **second part**, having established the necessary formalities, we will cover the following papers in detail:

    0. Maskin (1999), Moore and Repullo (1990), and Dutta and Sen (1991);

    1. Hurwicz (1986), Korpela (2012), de Clippel (2014), Yegane (2018), Hayashi et al. (2020), and Barlo and Dalkıran (2021);

    2. Dutta and Sen (2012), Kartik and Tercieux (2012), Lombardi and Yoshihara (2018), and Altun et al. (2021);

    3. Koray and Yildiz (2018), Yılmaz (2019), and Korpela et al. (2020);

    4. Bergemann and Morris (2008), and Barlo and Dalkıran (2020);

    5. Li (2017), and Mackenzie (2020);

    6. other relevant papers.

    The allocation of papers to students for presentations will be done during our lectures. During presentations, the other students are supposed to have gone over the paper in detail and are expected to participate in the discussion.

- Our lectures in the **first part** are to be <u>**static**</u>.

    I will be providing video files (over YouTube) every week. As I am not bound with physical limitations, I may cover the course material in a weekly video slightly longer than the three-hour mark to provide you more helpful insights and examples. In that case, the lectures will

be announced through the SuCourse, and these announcements will contain the pdf of that particular lecture along with the link to the online video file.

On the other hand, I will arrange Zoom meetings with the class on Wednesdays starting 16:30 PM (among the allocated hours of the class) to take students' questions and provide more insights if needed. These **synchronous parts** will be recorded and posted on YouTube as unlisted videos. Moreover, the notes that we prepare during these meetings (on iPad with its pen) will be sent to you as well.

- To evaluate your work at the end of the first part, I intend to do an **open-book midterm examination** which will be conducted online adhering to the regulations called for by our university. On top of those, each student participating in any examination of this course is obliged to read and sign the printed version of some version of the following statement at the beginning of the examination and keep it safe in order to be able to give it to me in the first opportunity that arises. If the student does not have a printer, then the student must write this statement completely on some piece of paper (include the date) and scan the handwritten version and send it along with his/her examination (while keeping it safe to submit it to me in the first opportunity that presents itself). The following is from ECON501 - Fall 2020 Final examination and may be subject to change in our examinations if the need arises.

Statement of Academic Honesty and Integrity

I, hereby, declare that during the *final examination of ECON 501 – Microeconomics I – Fall 2020* I have not received, I have not given, nor will I give or receive, any assistance from/to another party and/or a student taking this examination, including discussing and/or corresponding (over conventional and online media) about the examination with fellow students and other parties. Moreover, I will not use any electronic devices apart from calculation purposes and going over the lecture notes to assist me on this open-book examination. I will not cheat and plagiarize someone else's work and turn it in as my own. I understand that acts of academic dishonesty may be penalized to the full extent allowed by Sabancı University, including receiving a failing grade for the course and facing further disciplinary actions.

- My advice for you is to follow this course on a timely basis and work every week as the course progresses. If you wait, do not follow the course and accumulate materials, and do not come to our meetings to ask questions, then it is almost certain that you will not show a strong performance. Online methods, I think, are very efficient for those students who want to learn. Therefore, please regard this as a fair warning urging you to come to our meetings, work in a timely manner, and follow the course.

- **Attendance** is essential in this course.

  That is why I expect each student to be present in every synchronous lecture of this course.

- **Midterm:** (%40 of grade) The midterm will be comprehensive and cover the first part of our course.

- **Presentations of papers:** (%40 of grade) Each student is responsible to present paper or papers. The assignment of the papers will be jointly determined in class while the instructor keeps his right to dictate an assignment if needed.

  The grading is done as follows: The student is awarded

  - 0, if he/she does not show up to his/her presentation without a documentable valid excuse;

  - 50, if he/she is present while the documents (such as slides, notes, and etc.) prepared and actual presentation made are not satisfactory;

  - 70, if either the documents prepared or the actual presentation is not satisfactory, while the other is;

  - 85, if both the prepared documents and actual presentation are satisfactory while not being not displaying perfect command of the subject at hand;

  - 100, if both the prepared documents and actual presentation display perfect command of the subject at hand.

  The instructor determines the evaluation of the presentation and informs the student privately at the end of his/her presentation.

- **Participation:** (%20 of grade) Each student is expected to participate in the discussions relating to the papers presented in the lectures in the second part of the course.

  The grading to be determined by the instructor and to be privately shared with the student at the of each presentation is done as follows:

  - 0, if he/she does not show up to the presentation without a documentable valid excuse (in case of a valid excuse, that particular presentation is taken off the consideration and its weight is to be allocated equally to the other presentations);

  - 50, if the student is present but does not get involved at all with the presentation and discussions concerning the presentation;

  - 75, if the participation of the student is present but does not display strong command of the subject at hand;

  - 85, if the participation of the student is present and displays a strong command of the subject at hand;

    – 100, if the participation of the student displays a perfect command of the subject at hand (such as answering others' questions and etc.).

- We adopt the following **grading policy**: A student who fails to show up for the midterm examination and three or less synchronous lectures without valid excuses will receive N/A (and not F) as his/her final grade.

POLICIES

1. All answers to midterm (and its make-up if granted) must be neatly and clearly written. The grader is the final judge of what is legible and may request specific students to type their work.

2. During the midterm (and its make-up examination if granted), the webcam of the student must always be on. If not, the examination at hand will be void. Moreover, the student must connect to the Zoom meeting of the examination with his/her official Sabancı University e-mail account and is not allowed to utilize other e-mail accounts unless explicitly permitted by the instructor.

3. Make-up exams are granted only in case of a valid and documented reason. Absence in exams without any valid and documented excuse will result in a grade of 0 from that exam. In case of an illness or other documentable excuses, the student is required to contact me within three business days with a petition summarizing his/her situation and preferably presenting documentation for their excuses.[1] I will also accept a formally written e-mail from the sabanciuniv.edu e-mail address of the student, and hence the petition does not have to be physical. The documentation could be in the form of a formal doctor's note from a state hospital[2] or police/insurance report in case of a minor traffic accident providing details; and so and so forth. All verified documentation has to be submitted physically in three business days following the expiration of the excuse or the verification date. If the instructor finds the excuse of the student valid, then either a make-up examination will be arranged, or the corresponding points from that examination will be shifted to the consequent examination. I wish to emphasize that due to YÖK regulations, I have to be quite strict about these formalities.

4. A student who fails to show up for the midterm examination and three or less synchronous lectures without valid excuses will receive N/A (and not F) as his/her final grade.

5. In case of scholastic dishonesty, no credits will be given for that particular work. Cheating during written work will result in an F for the course. All incidents of scholastic dishonesty will be reported to FASS.

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[1] These regulations are from the "Sabancı Üniversitesi Lisans Eğitim ve Öğretim Yönetmeliği" – *Resmi Gazete No: 29607 Tarih: 28 Ocak 2016* Madde 22-2-a.

[2] 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 following the expiration date of the doctor's note.

References

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