ECON-106G: Introduction to Game Theory

Syllabus (tentative)

Vitaly Titov

Summer 2018, Session A

1 Organization

Instructor: Vitaly Titov
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Lectures: Tuesday and Thursday, at 10:45am-12:50pm in Dodd Hall 147
Office Hours: Thursday, at 3:00-5:00pm in Bunche Hall, room 9384
Course website: https://moodle2.sscnet.ucla.edu/course/view/181A-ECON106G-1

2 Course Description

Game theory is a useful tool in analyzing and predicting economic agents' decision making when decisions of each agent can affect each others. Main goal of the course is to introduce the basic solution concepts of game theory: dominant strategies, rationalizability, Nash equilibrium, sub-game perfect equilibrium, Bayesian Nash equilibrium, perfect Bayesian equilibrium.

Various examples of each solution concept will be provided in class. The students are expected to be able to apply theory to real life situations through homework assignments and exams.

3 Prerequisite

ECON-101 (or equivalent). Students are expected to have a basic knowledge of differential calculus and basic probability, as well as being comfortable with interpreting and drawing graphs of mathematical functions.
4 Textbook


Note: the textbook is not required for the course, as lectures will be self-contained. It is provided here for general references and/or additional exercises.

5 Grading

There will be two in-class exams: midterm (July 12th) and cumulative final (August 2nd). Out of the two scores for the exams, the lowest will be counted with weight of 25%, while the other - with weight of 75%. For instance, having the scores of 80 for the midterm and 100 for the final, a student will obtain a score of $0.25 \times 80 + 0.75 \times 100 = 20 + 75 = 95$.

In addition, there would be problems sets, that would give bonus points. Problems sets can be done in groups of up to 5 members, and would be graded only for completion.

6 Course outline

Week 1: Single-person decision problem, Basic components of game theory.

Week 2: Best responses, Rationalizability, Nash equilibrium, Mixed strategies.

Week 3: Dynamic games, Subgame perfect Nash equilibrium.

Week 4: Incomplete information, Imperfect information, Bayesian Nash equilibrium.

Week 5: Mechanism Design.

Week 6: Perfect Bayesian equilibrium, Moral Hazard, Signaling, Adverse Selection.

Note: this is a tentative schedule and is subject to change. Students are responsible for learning about any changes in the syllabus that are announced during class. An online copy of the syllabus will be kept current and available for students to view.

7 Course Policies

7.1 Exams

- Exams will occur in class at the dates specified in the course outline.
• Exams are closed books and closed notes.

• Exams will consist of multiple choice and free response questions.

• Final exam is cumulative.

• Policy on missed exams:

  (a) Exams must be taken at their scheduled time. Please note that under no circumstances will a makeup exam be administered if a student misses the midterm. If a student has a valid medical excuse and can provide written documentation of such of an excuse, or if the student has received prior permission (at least one week in advance of the exam) to miss an exam from the instructor, then additional weight will be placed on the final exam.

  (b) Any documentation provided, such as a doctor’s note, should clearly state that the student was incapacitated and was therefore unable to take the exam or faced a serious impediment that prevented attendance at the exam. A student who misses an exam without a valid, verifiable excuse will receive a zero. – If due to a verifiable emergency, a student misses the final exam, then that student will be required to take a makeup final exam administered by the department at the officially announced day and time. If a student misses all exams this student will receive an automatic grade of “F”.

7.2 Grade Appeals

Exams will be made available to students as soon as they are graded. The solutions for the exam will be posted online. Grade appeals should be made in writing. When a grade is appealed, the entire exam will be regraded. As such, a student’s score on an exam may increase as well as decrease after a regrade. Any grade appeals must be made within two weeks from the day the exam is first available for review.

7.3 Disabilities

• Any student with a pre-existing illness or condition who requests special arrangements must (a) qualify under the Office of Students with Disabilities (OSD) rules for such special arrangements and (b) must take the exam with OSD.

• Any such arrangements with OSD must be made in the first week of classes. The instructor must be informed of any such arrangement in the first week of classes.

• For additional information please visit the OSD website.
• All other students must take the exam at the scheduled time under the same time constraints. It is the responsibility of all students who request special arrangements with OSD to be familiar with all of their rules as well as the rules of this class.

7.4 Academic Dishonesty

• Submission of test answers to be counted towards the course grade automatically imply a personal pledge that the student has neither given nor received unapproved information about the test, whether by copying answers or exchanging unauthorized prior information. The college may initiate disciplinary proceedings against a student accused of scholastic dishonesty.

• Scholastic dishonesty may involve one or more of the following acts: cheating, plagiarism, and/or falsifying academic records.

• Cheating is the willful giving or receiving of information in an unauthorized manner during an examination, illicitly obtaining examination questions in advance, or any other dishonest means of attempting to fulfill the requirements of the course.

• Any cases of cheating will be reported to the Office of the Dean of Students.

• For more details please refer to the Office of the Dean of Students website.