

EC 7741.2: Graduate Microeconomic Theory Module 4 Game Theory and Information Economics

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Course Objectives: This is an introductory game theory and information economics module in the Graduate Microeconomic Theory sequence. The aim of the course is to build a solid background for economics PhD students in game theory and information economics. It is equally targeted to students who would like to do applied or theoretical work in the future.

Teaching Method: Lectures and Recitations. The lectures will cover primarily the theoretical material, supplemented with examples. Participation is very much encouraged. Problem solving is essential for improving one's understanding of game theory. Regular homework exercises will be assigned. Moreover your TA will hold recitation hours in which he will solve more examples or exercises from the homework assignments.

Course Materials:

1. Utku Ünver's course notes and slides [provided as a PDF on Canvas]
2. *Microeconomic Theory*, Andreu Mas-Colell, Michael Winston, and Jerry Green [recommended to be bought]
3. *A Course on Game Theory*, Martin Osborne and Ariel Rubinstein [freely available for download]
4. *Advanced Microeconomics*, Geoffrey Jehle and Philip Reny [one chapter is provided on Canvas]

Other Recommended Materials:

5. *Game Theory for Applied Economists*, Robert Gibbons [recommended to be bought]
6. *Mechanism Theory*, Matthew O. Jackson*¹

¹An abridged version of this appears in *Optimization and Operations Research*, edited by Ulrich Derigs, in the *Encyclopedia of Life Support Systems*, EOLSS Publishers: Oxford UK, [http://www.eolss.net], 2003. Also * means that we will probably will not have time to cover it.

Grades and Requirements: Students are expected to come to each class, read the assigned material and solve the homework questions as scheduled. Class participation through questions to the instructor and answers to the questions of the instructor are expected. There will be graded homework assignment sets and also you will take a final at the end of the semester on this module. The final will make up 90% and the handed-in homework assignments will count 10% toward your grade in this module. Thus, solving homework assignments before they are due and turning in “your own” solutions to your TA is a requisite of this course.

You can work in groups of at most two students for the homework assignments. In previous years, incidences of copying answers from other sources occurred, unfortunately. We will have to take serious disciplinary action if it occurs, besides giving 0 grade for the homework to all the guilty parties and nullifying grades from one of the other homework assignments. It is better if you do not turn in your homework, if you even contemplate of copying answers for one or more questions. Also please see the academic honesty statement at the end of the syllabus, which is also valid for graduate students. I think this issue is even more daunting for graduate students on grounds of academic integrity than undergraduate students.

Tentative Course Outline:

- Normal-Form Games
- Solutions Through Common Knowledge of Rationality
- Extensive-Form Games with Perfect Information
- Strategic Games with Imperfect Information
- Extensive-Form Games and Signalling Theory
- Repeated Games
- Adverse Selection, Signalling, Screening
- The Principal-Agent Problem: Hidden Actions and Hidden Information
- Mechanism Theory
- Dominant Strategy Mechanism Design*
- Bayesian Mechanism Design*

Statement on Academic Integrity from the College of Arts and Sciences:

The College of Arts and Sciences expects all students to adhere to the accepted norms of intellectual honesty in their academic work. Any forms of cheating, plagiarism, or dishonesty or collusion in another's dishonesty is a fundamental violation of these norms.

CHEATING is the use or attempted use of unauthorized aids in any exam or other academic exercise submitted for evaluation. This includes data falsification; the fabrication of data; deceitful alteration of collected data included in a report; copying from another student's work; unauthorized cooperation in doing assignments or during an examination; the use of purchased essays, term papers, or preparatory research for such papers; submission of the same written work in more than one course without prior written approval from the instructor(s) involved; and dishonesty in requests for either extensions or papers or make-up examinations.

PLAGIARISM is the deliberate act of taking the words, ideas, data, illustrative material, or statements of someone else, without full and proper acknowledgment, and presenting them as one's own.

COLLUSION is assisting or attempting to assist another student in an act of academic dishonesty.

As part of your scholarly development, you must learn how to work cooperatively in a community of scholars and fruitfully utilize the work of others without violating the norms of intellectual honesty. You have a responsibility to learn the parameters of collaboration and the proper forms for quoting, summarizing and paraphrasing.

Faculty members who detect any form of academic dishonesty have the responsibility to take appropriate action. The faculty member also has the responsibility to report the incident and penalty to the Department Chairperson and the appropriate Class Dean. The report will remain in your student file until you graduate.

If the gravity of the offense seems to warrant it or if the faculty member prefers that another academic authority decide the matter, he or she may refer the case to a Dean. In addition, if the student is unwilling to accept the faculty member's decision, he or she may choose to have the matter adjudicated either by an Associate Dean or by an Administrative Board. The section of the College of Arts and Sciences in the Boston College Undergraduate Catalogue has further details about this process. Academic integrity is a very important matter. If you have any questions in any of your courses about what is allowed or not allowed, please discuss the matter immediately with the instructor.

Disability Statement:

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Office of Disability Resources and Services through Suzy Conway, Ph.D., LICSW, Assistant Dean for Students with Disabilities, Office of the Dean for Student Development, Boston College, 21 Campanella Way, Suite 212, Phone: 617-552-3470, TTY: 617-552-2548, Fax: 617-552-3473, Email: suzy.conway@bc.edu. Also see <http://www.bc.edu/offices/odsd/disabilityservices.html>.