

ECON 511H, Game Theory

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1 Course Goals

Broadly: to provide an introduction to Game Theory. More specifically, give tools to enable one to model strategic situations as games by: choosing an appropriate solution concept; solving for the equilibria or solution set; and finally by performing comparative statics exercises. Furthermore, we aim to develop writing/rethorical skills to persuade a layman of game theoretic conclusions of selected strategic problems.

2 Pre-requisites

ECON 410 and MATH 223. It is not a pre-requisite, however, Discrete Mathematics (MATH 381) is extremely useful to this course.

3 To do list for the first week

1. Check the final examination schedule of **ALL** classes you are enrolled. In case: a) you have more than 3 final exams in more than 24 hours; b) ECON511H is one of these exams; and c) you wish to re-schedule one of your exams; then you **MUST** contact the professors of the other courses. If they are unable to accommodate your request and if you forward your e-mail communication with them in the *first two weeks of class*, I will try my best to comply with your request.
2. Place an order for the software *Mathematica* throughout software.sites.unc.edu/software/mathematica/. The *student license is free*. However, you must place an order.
3. If you are eligible for taking exams with Accessibility Resources, please schedule with them in the first week of classes and notify me.

4 Contacting the instructor

Wednesdays from noon to 4PM, I hold office-hours with *an open door policy*: first come, first served. You should not email me to set appointments for meetings during this time. For meeting me at any other times or to conduct an email consult, please email me at sergiop@unc.edu with the following **subject** line: ECON511 (no additional text). If you email me with a subject line different than ECON511, it may take several days for me to get back to you or perhaps I may not receive your email at all.

5 Tentative Schedule

Out main textbook is: Osborne, Martin J. (2004) *An Introduction to Game Theory*, Oxford University Press. Nonetheless, below topics in boldface are not contained in the main textbook.

1. Nash Equilibrium: Chapter 2; August 20, 22, 27
2. **Pareto Efficiency**; August 20, 22
3. Illustrations: Chapter 3; August 29, September 3
4. **Mathematics: Constrained Optimization**; September 5
5. Midterm 1: September 10
6. Mixed Strategies: Chapter 4 September 12, 17
7. **Correlated Equilibria** and Rationalizability: Chapter 12 September 19, 24
8. Evolutionary Equilibrium: Chapter 13; September 26
9. Extensive Games: Chapter 5; October 1, 3
10. Illustrations and Extensions: Chapters 6 and 7 October 8, 15
11. Midterm 2: October 10
12. Fall Break: October 17
13. Bayesian Games: Chapter 9; October 22
14. Extensive Games of Imperfect Information: Chapters 10 and 11; October 24, 29, 31
15. Cooperative Games: Chapter 8; November 5, 7, 12
16. Repeated Games: Chapter 15; November 14, 19, 21
17. **Introduction to Mechanism Design**; December 3
18. Final Examination December 10 at noon

6 Grading Policy

1. Two midterm grades account for 30% of the final grade.
2. Final examination grade is worth 40% of the final grade.
3. Ten or more problem sets: 20%.
4. Written papers: 10%
5. Exams scores are scaled: $\text{Score} = \text{Exam Grade} + 100 - \text{Max Exam Grade}$.
6. Course grades are computed accordingly to the table (without rounding up or down):

max. score	letter grade	min. score
100 =	A+	= 100
100 >	A	≥ 95
95 >	A-	≥ 90
90 >	B+	≥ 87
87 >	B	≥ 83
83 >	B-	≥ 80
80 >	C+	≥ 77
77 >	C	≥ 73
73 >	C-	≥ 70
70 >	D+	≥ 67
67 >	D	≥ 63
63 >	D-	≥ 60
60 >	F	≥ 0