

Syllabus: Initial Draft
Econ 4101-001: Game Theory Honors
University of Pennsylvania
November 30, 2023

Professor: Steven Matthews <stevenma@econ.upenn.edu>

Teaching Assistant. TBA

Description. The object of game theory is to understand situations in which a person's behavior affects the optimal behavior of others. In this course we study the theory and some of its applications to economics, political science, and law. The goal is to give you a solid grasp of both the methods and the basic models used in game theory.

Prerequisites. Econ 2100 and Math 1080 or 1410, with a grade of B or better.

Teaching Methodology. Lecture slides and notes will be posted on Canvas to be read before they are discussed in class. This is a problem-oriented course, and we will spend some time in class doing problems in addition to the almost weekly problem sets.

Class Time and Room. MW 1:45-3:14 pm, Room TBA.

Office Hours.

- Professor: Fridays, 10:45-12pm. And by appointment.
- TA: TBA.

Required Textbook: *Strategy: An Introduction to Game Theory*, 3rd edition, by Joel Watson.

Optional Supplementary Text: *Game Theory: An Introduction*, by Steven Tadelis.

Assessment. 25% for the six problem sets,¹ and 25% for each of the three cumulative, in-class midterms. Each exam is closed book, notes, and electronics.

If you are unable to take a midterm for an excused reason,² the other three instruments will be scaled up proportionately, each one counting 33. $\bar{3}$ %.

Upload Policy. You will upload to Canvas your solutions to the problem sets – as a pdf file. Your work can be handwritten, but scanned to create a *single* pdf file.

¹One of your problem sets that has your worst score will be dropped.

²The definition of an excused absence, departmental regrade policies, and so on can be found at <https://economics.sas.upenn.edu/undergraduate/course-information/course-policies>.

Important Dates

First Class	Monday 1/22
PS 1 due	
PS 2 due	
Midterm 1	
Drop Day	
PS 3 due	
Spring Break	
PS 4 due	
Midterm 2	
PS 5 due	
PS 6 due	
Midterm 3	

Tentative Course Outline

Topic	Watson Chapter
Representing Games	
Extensive form, strategies	1 – 3
Normal form, beliefs/mixed strategies	4, 5
Static Games	
Best response, rationalizability, applications	6 – 8
Equilibrium, applications	9, 10
Mixed strategy equilibrium	11
Strictly competitive games	12
Contract and law	13
Dynamic Games	
Extensive forms and subgame perfection	14, 15
Applications: IO and parlor games	16, 17
Bargaining games	19
Repeated games and applications	22, 23
Incomplete Information Games	
Random events and incomplete information	24, App A
Bayesian-Nash equilibrium, applications	26, 27
PBE, signaling, reputation	28, 29
Risk and Incentives (Moral Hazard)	25