

University of Pennsylvania
Fall Term 2021

ECON 13/PPE 311 - Strategic Reasoning

Lectures: Tuesday and Thursday 10.30-12.00, in STIT B6.

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Office hours: Monday, 4.30-5.30pm.

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Office hours: Wednesday, 4.45-6.15pm.

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Course home page: usual Canvas: <https://canvas.upenn.edu/>

PLEASE READ CAREFULLY the Departmental Policies at both
<https://economics.sas.upenn.edu/undergraduate/course-information/course-policies>
and
<https://ppe.sas.upenn.edu/study/curriculum/ppe-policies>

There will be **no class** on Nov. 23 (Tuesday). The class of Sept 16 (Yom Kipur) will be recorded on Zoom and posted online so that you can view it at your convenience.

COURSE DESCRIPTION

This course is about strategically interdependent decisions. In such situations, the outcome of your actions depends also on the actions of others. When making your choice, you have to think what the others will choose, who in turn are thinking what you will be choosing, and so on. Game Theory offers several concepts and insights for understanding such situations, and for making better strategic choices. This course will introduce and develop some basic ideas from game theory, using illustrations, applications, and cases drawn from business, economics, politics, and sports. Some interactive games will be played in class. There will be little formal theory, and the only pre-requisite is some high-school algebra and having taken Econ 1. However, general numeracy (facility interpreting and doing numerical graphs, tables, and arithmetic calculations) is very important. This course will also be accepted by the Economics department as an Econ course, to be counted toward the Minor in Economics (or as an Econ elective).

TEXTBOOK

Avinash Dixit, Susan Skeath and David McAdams (henceforth DSM), *Games of Strategy*, 5th edition, 2020

GRADING

Problem sets: 5 homework assignments during the term, due about once every two weeks, depending on our progress. **The best 4** will comprise **15%** of the course grade.

Midterm exams: There will be two (non-cumulative) midterm examinations. **Each midterm exam** counts for **25%** of the course grade.

Midterm exams schedule: October 5 (Tuesday), November 16 (Tuesday).

Final exam: There will be a (comprehensive) final examination. **The final exam** counts for **35%** of the course grade.

Final exam schedule: PRELIMINARY date is **December 17, 9am-11am**. Please check <https://srfs.upenn.edu/sites/default/files/publisher/Fall-2021-Preliminary-Final-Examination-Schedule.pdf> for updates.

- If you are unable to take one of the midterm exams for **an excused reason**, as specified in the departmental policies, the final exam will count for 50% of your course grade and the other midterm for 35%. There will be no make-up exams or other accommodations. All exams are under the university's code of academic integrity

THE FINE PRINT

- (1) Students have **one week** from the day in which examinations and problem sets are returned to report errors in grading and/or to request that problems be re-graded. If a student submits his/her exam for re-grading, then the student's entire exam will be re-graded (with no guarantee of a higher total score).
- (2) Students should attend and participate in class; ***their mobile phones and other devices should not***. The professor will employ the necessary means to discourage classroom distractions.
- (3) **2021 Specific:** recall that all of us (including myself) are required to wear masks at **all** times. This also means that eating and drinking (except with a straw) are not permitted in classroom.

COURSE OUTLINE (ORDER OF TOPICS MIGHT CHANGE)

1. INTRODUCTION AND MOTIVATION

Topics: Decisions (impersonal environment) and games (environment has other strategic actors whose choices interact with ours). Some dimensions of classification of strategic interaction

Required reading: DSM, Chapters 1 and 2

2. GAMES WITH SEQUENTIAL MOVES

Topics: Game trees, Rollback equilibrium, Bargaining

Required reading: DSM, Chapter 3. DSM, Chapter 17 (sections 3-6)

3. SIMULTANEOUS-MOVE GAMES

Topics: Dominant strategies, Dominated strategies, Nash equilibrium.

Required reading: DSM, Chapters 4-5

4. COMBINING SEQUENTIAL AND SIMULTANEOUS MOVES

Topics: Moving advantage, Subgame perfect equilibrium.

Required reading: DSM, Chapters 6

5. RANDOMIZATION

Topics: Mixed strategies. Their distinct roles in zero-sum and non-zero sum games.

Required reading: DSM, Chapter 7

6. SOCIAL COORDINATION AND CONFLICT

Topics: Multi-person dilemmas. Harmful external effects: congestion and pollution. Beneficial externalities, strategic complementarity. Role of policy, social conventions etc.

Required reading: DSM, Chapter 11

7. THE PRISONERS' DILEMMA AND REPEATED GAMES

Topics: Dominant strategy equilibrium in single play. Tacit cooperation in repeated play. Tit-for-tat and other strategies. Examples from business competition, international negotiations.

Required reading: DSM, Chapter 10

8. UNCERTAINTY AND INFORMATION

Topics: Incentives to reveal and conceal private information, and strategies for doing so: signaling and screening. Design of contracts and incentives.

Required reading: DSM, Chapters 9 and 14

9. VOTING IN ELECTIONS AND LEGISLATURES

Topics: The median voter theorem and its limitations. Agenda manipulation.

Required reading: DSM, Chapter 16

10. CONTRACTS, LAW, AND ENFORCEMENT IN STATIC SETTINGS

Topics: Complete contracting in discretionary environments. Contracting with court-imposed breach remedies. Expectation damages, Reliance damages.

Required reading: Lecture notes

11. (if time permits) AUCTIONS

Topics: Different types of auctions. Strategies for bidders and sellers. Truthful revelation of preferences

Required reading: DSM, Chapter 15