

Haverford College - Department of Economics
ECON 355 : ADVANCED MICROECONOMICS: UNCERTAINTY
Fall Term 2020

SYLLABUS

Course Description

This is an advanced course in microeconomic theory. Topics covered include: (i) consumer and producer theory; (ii) theories of choice under uncertainty, including measures and attitudes towards risk; (iii) applications to insurance and portfolio choice; (iv) game theory; and (v) applications to bargaining and auctions.

Instructor

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Teaching Assistant

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Texts

- Hal Varian, *Microeconomic Analysis*, 3rd edn, Norton, 1992.
- Osborne, *Introduction to Game Theory*, 2012
- Louis Eeckhoudt, Christian Gollier and Harris Schlesinger, *Economic and Financial Decisions Under Risk*, Princeton University Press, 2005. Available in paperback, ISBN 0-691-12215-6.
- Timothy van Zandt, *Introduction to the Economics of Uncertainty and Information*, draft book in preparation for Oxford University Press. Available from the author's [website](#).

Prerequisites

MATH121. (MATH215, and ECON360 are desirable.) This course is intended as part of the Mathematical Economics concentration and is most suitable for students who enjoy microeconomic theory and thinking analytically.

Assessment

Student evaluation will be based on weekly problem sets (20%), a mid-term exam (30%), a final exam (30%), and class participation (20%).

Problem sets shall be submitted via Moodle, typically on a Friday. Late problem sets will incur a penalty of 10% if submitted within 2 days of deadline, and 20% if submitted any later. Problem sets should be typeset in LaTeX. Solutions will be posted on Moodle the following week. The take-home midterm exam will be held during the week beginning October 19, and the final exam will be during finals week.

Format

This course will be taught using a 'flipped classroom' format. Students will be responsible for watching approximately 2 hours worth of lecture recordings in their own time. Additionally, students will attend a

weekly one-hour small-group problem-solving session. Students are expected to have appropriately engaged with the lecture recordings prior to attending problem-solving sessions. Students can access lecture recordings, slides and course notes on Moodle.

Economics Question Center

Students are also encouraged to make use of the weekly [Economics Question Center](#) to ask questions and work collaboratively with peers. The EQC will be held on Tuesday and Thursday evenings 7:30pm-9:30pm (ET) and Thursdays 10am-12pm (ET), and will be staffed by a mix of faculty and teaching assistants. I will typically be available on Tuesday evenings and Thursday mornings. Due to physical distancing requirements, the EQC will be conducted via Google Meets, and students can collaborate using Google Jamboards. See Moodle for more details.

There is also a dedicated [Google Chat room](#) for this course, which you may use to interact with me and with your peers.

Course Outline

1. Consumer Theory (3 weeks)
 - a. Preferences
 - b. Utility Maximization & Expenditure Minimization
 - c. Welfare
 - d. General Equilibrium

2. Theory of Choice Under Uncertainty (3 weeks)
 - a. Lotteries and Expected Utility
 - b. Risk (Risk Measures and Risk Preferences)
 - c. Violations of Expected Utility

3. Applications in Markets (3 weeks)
 - a. Insurance Markets
 - b. Asset Markets
 - c. Optimal Risk Sharing
 - d. Capital Asset Pricing Model

4. Game Theory (4 weeks)
 - a. Equilibrium concepts: Nash (existence of), Subgame perfection
 - b. Bargaining
 - c. Auction Theory
 - d. Games of Incomplete Information

Week	Beginning (Monday)	Lecture Recordings	Lecture Notes	Assessment (due Friday)
1	9/7	1.Preferences 2.Utility Maximization	1.1, 1.2	Problem Set 1
2	9/14	3.Expenditure Minimization 4.Welfare	1.3, 1.4, 1.5, 1.6	Problem Set 2
3	9/21	5.Ramsey Taxation 6.General Equilibrium	1.7 2.1, 2.2	Problem Set 3
4	9/28	7. Expected Utility 8. State Space	3.1, 3.2 3.3	Problem Set 4
5	10/5	9. Risk Preferences 10. Interpersonal Risk.	4.1 4.2	Problem Set 5
6	10/12	11. Risk Comparisons 12. Non Expected Utility	4.3 3.4, 3.5, 3.6	Problem Set 6
7	10/19	13. Applications 14. Insurance		Problem Set 7
8	10/26	15. Markowitz Portfolios 16. Arrow Debreu Securities		Problem Set 8
9	11/2	17. Risk Sharing 18. Asset Pricing		Midterm Exam
10	11/9	19. Nash Equilibrium 20. Subgame Perfection		Problem Set 9
11	11/16	21. Bargaining 22. Axiomatic Bargaining 23. Reputational Bargaining		Problem Set 10
12	11/30	24. Auctions 25. Interdependent Auctions		Problem Set 11
13	12/6	26. Contract Theory		Problem Set 12