

Econ 681 – Microeconomic Theory
Steven A. Matthews, University of Pennsylvania
August 29, 2019

Description. This course is designed for Wharton PhD students and undergraduate mathematical economics majors. It covers neoclassical microeconomic theory, stressing methodology as well as fundamental results. Topics are listed on the next page.

Prerequisites. A strong background in multivariable calculus, analysis, probability theory, optimization, and intermediate microeconomics.

Class Meetings. TR, 10:30-12 am in McNeil 150 (which doesn't exist, as of this writing)

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

Office hours: Wednesdays, 3:30-5 pm in 618 PCPE

Teaching Assistant. Akihisa Kato <akato@sas.upenn.edu>, office 648 PCPE

Office Hours: Wednesdays, 11:30-1:30 in 141 PCPE

Policy on Email. Put "ECON 681" in the subject line when you email us.

Homework. Problem sets are due roughly every two weeks, graded on a scale 0-3. Your lowest homework score will be dropped when determining your aggregate homework score. Late homework will not be graded. Study groups are good, but write up your solutions individually. Solutions will be posted ex post.

Exams. Two midterms and one cumulative final. All are closed book, notes, and devices. Midterm 2 covers the material discussed in class after Midterm 1.

Grading. Each midterm counts 30% and the final exam 40%, with homework counting in marginal cases. If you miss one midterm for an excused absence,¹ your grade will be calculated as 45% on the other midterm and 55% on the final.

Course Materials. Posted on Canvas: <http://canvas.upenn.edu>

Required Text. (JR) Jehle and Reny, *Advanced Microeconomic Theory*, 3rd ed.

Supplementary Texts. If you want to go more deeply into a topic, I suggest

- (MWG) Mas-Colell, Whinston and Green, *Microeconomic Theory*.

If you wish to brush up on intermediate micro, I suggest

- Varian, *Intermediate Microeconomics: A Modern Approach*.

If you wish to brush up on the relevant math, I suggest the JR Appendix,

- Simon and Blume, *Mathematics for Economists*, and
- The math tutorial of Martin Osborne:
<https://mjo.osborne.economics.utoronto.ca/index.php/tutorial/index/1/int/i>.

¹Excused absences and other course policies are defined at <https://economics.sas.upenn.edu/undergraduate/course-information/course-policies>.

Dates. There will be no class on **Tuesday 10/1 (Rosh Hashana)**, Thursday 10/10 (Fall Break), and 11/28 (Thanksgiving). The following are the planned dates on which the Problem Sets (PS) are due and the exams will be held.

PS 1	Thursday, 9/5
PS 2	Thursday, 9/12
PS 3	Thursday, 9/19
Midterm 1	Thursday, 9/26 in class
PS 4	Thursday, 10/17
PS 5	Thursday, 10/24
PS 6	Thursday, 10/31
PS 7	Thursday, 11/7
Midterm 2	Thursday, 11/14, in class
PS 8	Tuesday, 11/26
PS 9	Thursday, 12/5
Final Exam	Thursday, 12/12, 9-11am, room TBA

Topics. Our topics will be selected from chapters 1-5 in JR. The following outline is very rough and tentative as well.

1. Introduction: Economics and Mathematics
2. Consumer Theory
 - (a) Preferences and utility maximization
 - (b) Expenditure minimization and duality
 - (c) Demand functions: Slutsky equation and matrix
 - (d) Consumer surplus and compensating variation
3. Choice Under Uncertainty
 - (a) Expected utility
 - (b) Risk aversion
4. Producer Theory
 - (a) Technology
 - (b) Profit maximization
 - (c) Cost minimization and duality
5. Competitive Equilibrium
 - (a) Edgeworth boxes
 - (b) Existence and welfare theorems
 - (c) Arrow-Debreu and incomplete markets
6. Externalities and Public Goods
 - (a) Bargaining
 - (b) Pigouvian taxes
 - (c) Voluntary contribution
 - (d) Lindahl equilibrium