

## 14.121 Microeconomic Theory I

### Staff:

Instructor: Prof. Parag Pathak, E52-426, office hours: Wed 2:30-3:30pm

Teaching fellow: Matthew Ridley, mridley@mit.edu

### Logistics:

Two lectures per week, MW 1-2:30, 14 sessions total, E51-151

Recitations: Fri, 1-2:30pm, E51-151

Lectures begin 9/5/18 and end 10/24/18 (no class Columbus Day 10/8)

Exam: Friday, October 26, 2018, 1-2:30pm

### Description:

This course provides an introduction to microeconomic theory designed to meet the needs of students in the economics PhD program. Some parts of the course are designed to teach material that all graduate students should know. Other parts are used to introduce methodologies. Some topics of recent interest may also be covered.

Enrollment in this course is *limited* and permission of the instructor is required for students who are not in economics or Sloan PhD programs. Permission can be obtained by attending the first class and providing the instructor information about previous coursework in mathematics and economics, though strict priorities are set by the economics department and SHASS that I must enforce.

The course assumes that students have taken undergraduate intermediate microeconomics classes. It also assumes that students are comfortable with multivariable calculus, linear algebra, and basic real analysis. Historically, students from outside the economics department have had difficulty with the course. The enrollment limit may result in well-qualified students being turned away.

### Textbooks:

- Mas-Collel, Whinston, and Green. Microeconomic Theory, 1995. [MWG]
- Kreps, David. Microeconomic Foundations I: Choice and Competitive Markets, 2012. [Kreps]

Students should have easy access to both books.

In previous years, students have also found the following books helpful:

- Jehle, Geoffrey, and Philip Reny. Advanced Microeconomic Theory. 3rd ed. Prentice Hall, 2011. [JR]
- Kreps, David. A Course in Microeconomic Theory. Princeton, NJ: Princeton University Press, 1990.
- Varian, Hal. Microeconomic Analysis. 3rd ed. New York, NY: W.W. Norton, 1992.

### Grading and Requirements:

The course will be graded on the basis of a series of problem sets and a final exam. Problem sets will be due in class on assigned lecture dates. They will be graded on a check-, check, check+ basis. Problem set grades are intended primarily to give you an idea of how you are doing in the course

and will affect course grades only for students with borderline scores on the exam. You may work in groups, but please do the write-ups individually. We do not expect to see identical answers from different students. We are coordinating the date of final exam with 14.451 and 14.381, and the exam will be Friday October 26, 2018.

The reading list includes more than we can cover in our allotted time. Articles of interest are included here for those who wish to explore some of the issues in the course in more detail. *The readings from MWG and Kreps are required.* Any additional required readings will be mentioned in class.

## Course outline and reading list

### Part 1: Demand Theory (~4 lectures)

- Classical Demand Theory: MWG: section 2.B-2.E, 3.D-E, and 3.G-H, Kreps: Chapter 2-4.
- Demand Aggregation: MWG, sections 4.A, 4.B, and 4.D
- Price Changes and Welfare: JR, section 4.3.1

#### Additional Readings:

- Deaton, A. and J. Meulbauer (1980): *Economics and Consumer Behavior*. Cambridge University Press.
- Kreps, D. (1988): *Lecture Notes on the Theory of Choice*. Academic Press.
- Hausman, J. (1981): “Exact Consumer Surplus and Deadweight Loss.” *American Economic Review*, 71(4): 662-676, 1981.
- McFadden, D. (1973): “Conditional Logit Analysis of Qualitative Choice Behavior,” in P. Zarembka, ed., *Frontiers in Econometrics*, Academic Press, New York.
- Small, K. and H. Rosen (1981): “Applied Welfare Economics with Discrete Choice Models.” *Econometrica*, 49(1): 105-130.
- McFadden, D. (2005): “Nobel Prize Lecture: Economic Choices.” *American Economic Review*, 91(3): 351-378.

### Part 2: Producer Theory and Monotone Methods (~2 lectures)

- Monopoly Pricing: MWG, Section 12.B, sections 5.B-5.C
- Competitive Producer Theory and Robust Comparative Statics: MWG, 5.B-5.C

#### Additional Readings:

- Milgrom, P. and J. Roberts (1996): “The LeChatelier Principle.” *American Economic Review*, 85 (1996), 997-999.
- Topkis, D. (1998): *Supermodularity and Complementarity*. Princeton University Press, Princeton.

### **Part 3: Basic Competitive Markets: Externalities and Public Goods (~2 lectures)**

- MWG: Chapter 10 and 11
- JR: Section 4.1

Additional Readings:

- Coase, R. (1960): “The Problem of Social Cost.” *Journal of Law and Economics*, 3(1): 1-44.
- Weitzman, M. (1974): “Prices vs. Quantities.” *Review of Economic Studies*, 41(4): 477-492.
- Farrell, J. (1987): “Information and the Coase Theorem.” *Journal of Economic Perspectives*, 1(2): 113-129.

### **Part 4: General Equilibrium (~5 lectures)**

- MWG: Chapters 15, 16, 17, 18.
- Kreps: Chapter 14-15.
- Varian: Chapters 17, 18, 21.2, and 21.3.

Additional Readings:

- Hayek, F. (1945): “The Use of Knowledge in Society.” *American Economic Review*: 519-530.
- Debreu, G (1959): *Theory of Value: An Axiomatic Analysis of Economic Equilibrium*. New York, NY: Wiley.
- Debreu, G. and H. Scarf. (1963): “A Limit Theorem on the Core of an Economy.” *International Economic Review*, 4.
- Gale, D. and L. Shapley (1962): “College Admissions and the Stability of Marriage.” *American Mathematical Monthly* 88: 485-494.
- Shapley, L. and H. Scarf (1974): “On Cores and Indivisibility.” *Journal of Mathematical Economics*, 1(1): 23-37.

### **October 26: Final Exam**

Please note that the list of topics and the pace are subject to change. Students will be notified in such an event.