14.121 Microeconomic Theory I

Staff:
Instructor: Prof. Robert Townsend, E52-538, rtownsen@mit.edu, Office hours: after class
Teaching Assistant: Josh Bosshardt, E52-448, jbosshar@mit.edu, Office hours: Thurs 4-5

Logistics:
Two lectures per week: Mon, Wed 1-2:30, E51-057, 14 sessions total
Recitations: Fri 1-2:30, E51-057
Lectures begin 9/6 and end 10/25
Exam: Fri 10/27 1-3, 50-340

Description:
This course provides an introduction to theory and data designed to meet the needs of students in the economics PhD program. It provides an introduction to consumer choice and general equilibrium models, with an overview of the main results and tools used in these subjects and both directly and indirectly in a variety of other fields.

Enrollment in this course is limited and permission of the instructor is required. Permission can be obtained by attending the first class meeting and providing information about previous coursework in mathematics and economics. The course assumes that students have taken undergraduate intermediate microeconomics classes. It also assumes that students are comfortable with multivariable calculus and linear algebra and have had some exposure to real analysis. Historically, many students from outside the economics department have had difficulty with the course. The enrollment limit may result in well-qualified students being turned away.

Textbook:

Some students have also found the following books helpful:

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. The grades are intended primarily to give you an idea of how you are doing in the course. You may work in groups, but please do the write-ups individually. We do not expect to see identical answers from different students. Class participation is strongly encouraged. The final exam will be held during the final recitation on Friday October 27, 2017.
(Tentative) Course Outline and Reading List

• **Topic 1 (9/6): Economic Science**


  **References:**
  - SITE Summer Workshop, 2016, Stanford University, https://site.stanford.edu/2016/session-4

• **Lecture 2 (9/11): Fundamental Ingredients of Economies: The Breadth and Applicability of General Equilibrium Theory**


  **References:**
- General description of an economy: MWG 16.B
- Fisher, I., 1930. The theory of interest as determined by impatience to spend income and opportunity to invest it. New York, NY: Macmillan.
- Sonnencchein-Mantel-Debreu Theorem: MWG 17.E


References:
• Lecture 4 (9/18): Risk Sharing in Village Economies, Pareto Optimal Allocation of Risk
The programming problems in state space. First order conditions and characterization of the optimal allocation of risk bearing. Risk and insurance in village India. Risk and return in village economies – Thai. Family, village networks, gifts.

References:

– General equilibrium under uncertainty: MWG 19.A-B

• Lecture 5 (9/20): The First Welfare Theorem and Some Failures with Fixes

References:

– Production sets: MWG 5.B


- Arrow-Debreu equilibrium, sequential trade, asset markets, incomplete markets: MWG 19.C-G


- Lecture 6 (9/25): The Second Welfare Theorem and some Failures with Fixes


References:

- Kuhn-Tucker: MWG M.K
- Envelope Theorem: MWG M.L
- Second Welfare Theorem: MWG 16.D
- Convex sets and separating hyperplanes: MWG M.G

• Lecture 7 (9/27): Applications to Labor, Contracts, IO

References:

• Lecture 8 (10/2): Introduction to Existence

References:
– Correspondences: MWG M.H
– Classical Demand Theory: MWG 3.D
– Fixed Point Theorems: MWG M.I
– Nash Equilibrium: MWG 8.D

**• Lecture 9 (10/4): Calibration in Micro and Macro**


**References:**

– Stolper-Samuelson and Rybczynski theorems: MWG 15.D

• Lecture 10 (10/11): Aggregation – Positive and Normative Representative Consumers


References:
– Indirect utility functions: MWG 3.D

• Lecture 11 (10/16): Consumer Behavior and another Take on Welfare


References:
– Expenditure minimization and Hicksian demand: MWG 3.E
– Duality: MWG 3.G
– Welfare evaluation of economic changes: MWG 3.I

• Lecture 12 (10/18): Measurement: Income and Interconnections


References:

**Lecture 13 (10/23): Identification and Falsifiability of Consumer Optimization Theory**


**References:**

- Slutsky equation and Slutsky matrix: MWG 3.G
- Integrability:
  * MWG 3.H
- Weak axiom of revealed preference: MWG 2.F

**Lecture 14 (10/25): Testing General Equilibrium Theory**


**References:**
– Sonnenschein-Mantel-Debreu: MWG 17.E

