14.04 Intermediate Microeconomic Theory

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Grading TA: Laura Zhang, lyz@mit.edu

Recitation TA: Michael B. Wong, mbwong@mit.edu

Hours
Lecture: Tuesday and Thursday 2:30-4:00pm, https://mit.zoom.us/j/91169427116
Recitation: Fridays 3-4:00pm, https://mit.zoom.us/j/92187134066
Prof. Townsend office hours: Thursday after class, 4:10-5:00pm, https://mit.zoom.us/j/98824047517
Laura Zhang office hours: Monday from 4-5:00pm, https://mit.zoom.us/j/93615383485
Michael Wong office hours: Tuesday after class 4-5:00pm, https://mit.zoom.us/j/92745099412

Overview
This course provides an introduction to theory and data designed to meet the needs of students interested in economic science. It provides an introduction to consumer choice, the theory of the firm and general equilibrium models, with an overview of the main results and tools used in these subjects, both directly and indirectly as used in a variety of fields. This includes analysis of consumer and producer decisions, partial and general equilibrium analysis, insurance, the welfare theorems and failures of these theorems as with externalities but with resolutions, contract theory and mechanism design, policy analysis, the content of theory for data, and the design of media of exchange as with Bitcoin and markets made possible by distributed ledgers.

If you've had an economics class before, you're probably used to the following drill: learn some theory; if time permits, consider some stylized evidence that may or may not test the theory; repeat. That's not what we'll be doing in 14.04. The purpose of theory is to help us to think about how the world actually works. We're going to test them and learn from these tests, both when the data confirm the theory and when they reject it. John Maynard Keynes wrote, "Economics is a science of thinking in terms of models, joined to the art of choosing models which are relevant."

The Econometric Society and the Cowles Foundation framed economics as a science running in the laboratory of model economies. So, we are interested in inference, how do we measure, how do we estimate models, how to make welfare statements for actual policies as implemented and counter factual policies which might be undertaken.

In sum the class is organized around two intertwined themes:
1. Economic theory: what does it predict, and in what ways is it useful?
2. Empirical applications: Economic theory is a way of organizing facts and interpreting and patterns in the world. This class will use data to test theory and use theory to interpret data.

Prerequisites
This is an intermediate course in microeconomic theory and its application to real world phenomena and policy problems. The class assumes proficiency with economic theory at the 14.01 level as well as multivariate calculus. It is also quite helpful if you have taken some linear algebra, statistics or econometrics and are somewhat familiar with basic notions algorithms and computing, but for those who are not familiar with these additional tools, the TAs will provide a

primer or fill in gaps for this material.

Textbooks
All class readings including relevant textbook chapters will be available on the class website. The four books listed at the top of the reading list will also be on reserve in the MIT library.

Required readings
Each lecture has an associated set of readings listed on the class schedule. These readings will be featured in lectures, exams and problem sets. If a reading is marked required, with *, you are responsible for it. For professional papers as opposed to textbook chapters, here are some guidelines:

a)   What is the paper's research question?
b)   What methodology is used to answer the question (e.g., an experiment, a quasi-experiment, a set of correlations, etc.)?
c)   What are the key findings?
d)   What is the economic interpretation of these findings?

Recommended readings
You will find a number of recommended readings on the syllabus for your education and entertainment. These papers should be useful—and in many cases fun— and can be raised for discussion on Piazza -- but if the papers are not marked with a *, then you will not be tested on their content.

Class attendance
14.04 is not a by-the-book micro-theory class. A significant portion of the class will focus on applications from empirical and theoretical papers, often combined. It will be difficult to master this material unless you attend both the lectures and recitations either synchronously or asynchronously.

Laptop/tablet/phone use during class
I strongly discourage you against texting, tweeting, emailing, blogging, posting, browsing, Instagramming, Googling, shopping, etc., during class. It wastes your class-time—since you won't learn anything during lecture if you're distracted. I'm sympathetic to your desire to use your laptop or tablet to view the online lecture notes and take notes of your own. I would encourage you instead to print out the online lecture notes the night before class, and to write your notes directly on the paper lecture notes. In my experience, it's still faster and more accurate to take notes in class using paper and pen than to mark up a PDF file on your device.

Piazza
We will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, we encourage you to post your questions. We also encourage you to help other students on Piazza. However, **do not** post any problem set solutions on Piazza.

Find our class signup link at: https://piazza.com/mit/fall2020/1404 (Access code: mit1404)

Study groups

You are encouraged to form study groups. Discussing the course materials with other students is helpful in your learning process. If you are looking for a study group, please post here: https://piazza.com/class/kdgehg6srmc65z?cid=5

Grading
The class is not graded on a curve. It's possible for everyone to do well, and I'd be happy to have a reason to assign mostly A's. Under Emergency grading, letter grades will be at the levels of A, B, or C, and grades of D/NE or F/NE will not appear on any external records. If I assess that your performance in the class is of concern (C or lower), I will try to warn you before the drop date.

Here are the grading mechanics:
- Best four out of five problem set grades: 30%
- Three exams: 60%
- Course participation: 10%

Problem sets (30%):
I will assign five problem sets. Problem sets typically include a set of pure theory questions and a set of application questions, often based on readings. You must submit your problem sets in PDF form using Canvas. Late problem sets will not be accepted. No exceptions. In order to accommodate unanticipated events, illness, or conflicts in your schedule, I will automatically drop the problem set with the lowest score (for example, the one that you don't hand in). You may collaborate with other students on problem sets, but you must write up all solutions independently and in your own words. If you submit a problem set that is a direct copy of another student's, this will be considered academic dishonesty and will be dealt with accordingly. If you are stuck on a question, feel free to come to either of the TA's office hours. We will do our best to point you in the right direction, but we will not fully answer the question for you. This is to ensure that you have adequate opportunity to master the material. After the problem set has been graded and handed back we are happy to go over solutions with you if they are still unclear.

Three exams (20% each, 60% total)
There will be two exams of 80 minutes in length. There will also be a final exam during the finals period. You will have 120 minutes to complete the final. You should have extra time to help you to relax. It will count the same as each of the prior two exams, so in terms of overall scores, it is counted as a third midterm. The date of the final exam is set by the MIT Registrar's office, which strategically withholds announcing the exam dates until late in the semester so that you cannot pick your classes based on final exam schedules. Each exam will tend to focus on the new material since the previous exam, although of course you will need to understand the older material to apply the new material. The final will be comprehensive, from the beginning of the class, as the material is cumulative. This is a good time to review the course material. The exams will be based on the lecture notes, problem sets, assigned readings, classroom discussion and TA sessions.

Performance on exams is highly correlated with performance on problem sets. If you miss an exam for an excused reason, I will offer a written makeup or an oral exam on a whiteboard online. Students typically find oral exams painful. But, I will not write a new exam for only a few students—so, an oral exam is likely.

Exam Logistics

All exams will be administered through Gradescope. To register for Gradescope, go to gradescope.com and create a student account using your MIT email. Use the entry code: 92XJNG to add 14.04 as a course. You should also be able to enter the Gradescope tab in Canvas from the course sidebar. If you experience any difficulties, please email the grading TA.

You will be given 15 additional minutes on top of the normal exam length to upload your submission to the site. If you experience difficulties with the submission process, please inform the grading TA immediately. Exams are open book, but you should not anticipate there being enough time to look up many questions on the exam.

The exam will start at the regularly scheduled time, and if you would like to request an alternative time (because of time zone, internet access, or home environment), you must email the grading TA at least one week prior to the exam date to reschedule. Alternative exam times will fall within a preset 24-hour block that includes the regularly scheduled time. This will allow the grading TA to be present to answer exam questions if needed. You should not select a time that conflicts with another scheduled class session or exam.

Course participation (10%)

You are encouraged to participate in this course actively, either in class or on Piazza, ideally both. Please ask questions to make sure you understand the lecture materials. Piazza participation is encouraged for all students. Piazza participation will be especially important for students who are unable to participate in class live due to time zone differences or other obstacles to class participation. You will not be penalized if you are unable to attend class live because of these obstacles. You are strongly encouraged to not only ask questions on Piazza, but also to provide helpful answers to the questions of your classmates. If you participate regularly in one way or another, I will learn your name and count your participation towards your grade. Though course participation counts only 10%, from past experience this component has a lot of variation across students and matters significantly for final grades.

Questions regarding grading

Questions on grading should go first to the grading TA. Your grading TA must receive questions on exam or p-set grades no more than one week after the assignment/p-set has been handed back. To have the grading reconsidered, take the following steps:

1) Email the material to the grading TA along with a note describing specifically what you believe the problem to be. (Make a copy of your note and the problem set/exam for your own safekeeping.)
2) After the TA has contacted you by email, schedule a Zoom meeting to discuss the question.

This procedure is designed to facilitate fair and consistent grading. Please note that regrade requests for problem sets and exams should be submitted only for obvious grading errors (e.g. adding up points incorrectly, failing to see a correctly answered question, etc.) We are very unlikely to honor requests of the form "I think I deserve more points on this question because..." Furthermore, note that if you do request a regrade, we reserve the right to regrade your entire problem set or exam. Therefore, your final grade may increase or decrease as a result of the regrade request.

Getting help outside of class
If you have questions on the class material or problem sets, there are four ways to get help:

1. Use Piazza. We'll have threaded discussions there (monitored by TAs and professor as needed) for all problem sets and class topics. You should get a pretty quick response—and a good answer.
2. Drop in during TA office hours.
3. Drop in during Prof. Townsend's office hours.
4. Ask question during recitation (and in class as appropriate).

Please do not send us your class-related questions by email (except for personal class-related matters). Piazza is a more efficient way for us to communicate with you, and it is also benefits your classmates. If you email class related questions to us, we may respond, but we will be irritated.

Schedule
Class topics and readings are subject to revision. It is possible that some topics and readings will be dropped if time runs short.