Overview

API 109 is the first semester of the two-semester sequence in advanced microeconomics for MPA/ID students. The goal of the course is to prepare students to analyze applied problems in international development using the tools of modern microeconomic theory. The course is a doctoral-level course in microeconomic theory with an eye toward policy applications in development economics.

Audience

This course is intended for first-year MPA/ID students. Students not in the MPA/ID program will be admitted only with the permission of the instructor and only under exceptional circumstances. Students interested in a similar advanced microeconomics course should consider API 111 / Econ 2020a / HBS 4010 instead.

Prerequisites

The main prerequisite for this course is an understanding of multivariate calculus. Familiarity with linear algebra, probability theory, and mathematical optimization is also helpful. The most important prerequisite, however, is a degree of “mathematical sophistication” and comfort with rigorous reasoning and arguments.

Date: September 5, 2018.
Requirements and Grading

The course requirements include the completion of several problem sets, a midterm exam, and a final exam. Your grades on these tasks will be weighted according to Scheme A and Scheme B.

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<tr>
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<th>Scheme A</th>
<th>Scheme B</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>15 %</td>
<td>15 %</td>
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<tr>
<td>Midterm Exam</td>
<td>25 %</td>
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<tr>
<td>Final Exam</td>
<td>60 %</td>
<td>85 %</td>
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Your final score will be computed according to the most favorable (for you) of the two weightings. Letter grades will be assigned based on your final weighted score. The distribution of course grades will correspond roughly to the Harvard Kennedy School’s recommended grade distribution.

Exams

The midterm exam will be held in class. The final exam will be scheduled by the registrar during the final exam period. Exam dates and times are noted in the course calendar below.

Problem Sets

Problem sets are graded primarily for completion and only a “check+ / check / check− / no credit” will be offered for feedback. Earning a “check−” or better gives you full credit for the problem set. Sloppy, half-hearted, or incomplete work is unlikely to receive credit. We will drop your lowest problem set grade in calculating your grade for this part of the class.

You are allowed to work in small groups (four or fewer students) on the problem sets, but you must hand in independently written-up solutions. If you choose to collaborate with others, please identify other group members on your write-up. It will be very difficult to do well on the exams unless you can independently complete problem-set-like questions.

Unless you make prior arrangements, you must submit completed problem sets in hardcopy to the MPA/ID assignment dropbox before the due date. Do not bring assignments to lecture. Late problem sets will not be accepted. There is no need to type-up your problem set solutions, but sloppy work will not receive credit.

Review Sections

The teaching fellow will hold weekly review sections. Formally, attendance at these sections is optional. However, most students will benefit greatly from attending one weekly review section.

Course Readings

There will be required readings from the following sources:


• Miscellaneous academic journals.

MWG is the standard textbook used in economics Ph.D. programs. We will also use a set of supplemental notes authored by Nolan Miller. These notes are freely available online. Readings from academic journals can be accessed online through the Harvard Library’s website.

For some lectures there are suggested/optional readings from the following sources:

• *Lecture Notes in Microeconomic Theory* [Rubinstein] by Ariel Rubinstein.

• *Advanced Microeconomic Theory* [Jehle and Reny] by Geoffrey A. Jehle and Philip J. Reny.

• *Cooperative Microeconomics: A Game Theoretic Introduction* [Moulin] by Hervé Moulin.

• *Economics and Consumer Behavior* [Deaton and Muellbauer] by Angus Deaton and John Muellbauer.

For a different exposition of the course material and for more exercises, you may wish to consult *A Course in Microeconomic Theory* by David M. Kreps, *Microeconomic Foundations I: Choice and Competitive Markets* by David M. Kreps, or *Microeconomic Analysis* by Hal R. Varian. Students seeking a math supplement may wish to consult *Mathematics for Economists* by Carl P. Simon and Lawrence E. Blum or *Fundamental Methods of Mathematical Economics* by Alpha C. Chaing.

**Optional Enrichment Lectures**

This course touches many topics and regrettably some subjects cannot be covered in the depth that they ought to be. Some students may benefit from gaining exposure to more advanced topics of particular interest. Thus, the following optional enrichment lectures are planned:

1. Discrete Exchange Economies and Assignment Markets

2. Existence of Walrasian Equilibrium

3. Two-Sided Matching Markets with Financial Transfers

*Optional enrichment lectures are optional.* Any new concepts presented are not exam material. Consult the course calendar for details concerning these lectures.

**Audio/Video Recordings**

I kindly ask you not to make audio or video recordings of the lectures.
Advice

1. Exam questions will resemble problem set questions. Please seek out practice problems wherever you can. Look beyond the assigned problem sets! Many textbooks have extra exercises. The internet is another resource. The teaching fellow, course assistants, and I are more than happy to help you solve/learn relevant material that you encounter independently.

2. Read the assigned readings before lecture and again after lecture. The excellent notes by Nolan Miller parallel MWG and are less dense. You may wish to read them first.

3. If pressed for time, you are better off practicing problem solving rather than memorizing the details of an assigned text.

4. Please feel welcome to ask questions in class. Illuminating digressions are exciting. However, I may defer your question to a later date or to office hours if it will get us too far off track.

5. Please make use of office hours. Even if you have no specific questions about the course material, please feel welcome to visit, chat, ask questions, or simply say hello.

Credits

This course draws on material that I was fortunate to encounter as a student, teaching assistant, and faculty. I am particularly indebted to David Ahn, Bob Anderson, Chris Avery, Ben Hermelin, Shachar Kariv, Botond Kőszegi, Nolan Miller, Matthew Rabin, Martin Rotemberg, and Chris Shannon. I also thank former teaching assistants and students whose input has improved the class.
Important Dates

Exams are scheduled for the following dates:

- Midterm Exam: 11.45–13.00, October 10, 2018. The exam is held in class.
- Final Exam: 14.00–17.00, December 17, 2018. The location will be announced at a later date.

Problem sets are due on the following dates:

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<tr>
<th>Problem Set</th>
<th>Date Due</th>
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<tr>
<td>1</td>
<td>September 17</td>
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<td>2</td>
<td>September 24</td>
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<td>3</td>
<td>October 1</td>
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<td>October 19</td>
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<td>November 5</td>
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<td>6</td>
<td>November 19</td>
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<td>7</td>
<td>December 3</td>
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There is a regular lecture scheduled on Friday, September 7, 2018. It will be held at the regular class time and location.

Due to the API 209 midterm exam, the review sections on Friday, October 12, 2018, are cancelled.

There are no lectures on the following dates:

- Monday, October 8, 2018 (Columbus Day)
- Monday, November 12, 2018 (Observance of Veterans Day)
- Wednesday, November 21, 2018 (Thanksgiving Recess)
Course Calendar

The calendar will be adjusted depending on our progress. There are two types of readings. Required readings you should attempt before class and review after class. Optional readings may be assigned as the course proceeds to facilitate discussion, illustrate applications, or to provide additional context. Additional readings may be added based on class interest.

Key: • = required reading. ◦ = optional/supplemental/recommended reading.

September 5
Lecture 0. Introduction.


September 7

• MWG 1.A–1.B.

◦ Jehle and Reny 1.1–1.2.

◦ Miller Chapter 1.

◦ Rubinstein Lecture 2.

◦ Deaton and Muellbauer Chapter 1, 2.1–2.2.

September 10

• MWG 3.A–3.D.

• Miller 3.1–3.3.

◦ MWG Appendix M.K (Constrained Optimization).

◦ Jehle and Reny 1.3–1.4; Appendix A2.

◦ Rubinstein Lecture 4.
September 12

- MWG 3.D–3.G.
- Miller 3.4.
- Jehle and Reny 1.4–1.5.
- Deaton and Muellbauer 2.3–2.5.

September 17

- MWG 3.I.
- Miller 3.4.
- Deaton and Muellbauer 7.4.

September 19

- MWG 2.F & 3.J.
- Rubinstein Lectures 3 & 5.
- Jehle and Reny 2.3.
- Deaton and Muellbauer 2.6.
September 24

- MWG Chapter 6.
- Miller Chapter 6.
- Rubinstein Lectures 7 & 8.
- Jehle and Reny 2.4.
- Deaton and Muellbauer Chapter 14.

September 26

- MWG Chapter 6.
- Miller Chapter 6.
- Jehle and Reny 2.4.

October 1


October 3
Lecture 9. Catch-up / To Be Announced.

October 8
No Lecture (Columbus Day).

October 10
Midterm Exam.

- In class, closed-book exam.
- Covers all preceding lectures.
- No electronics; however, non-graphing and non-programmable calculators are allowed.
October 15

- MWG 5.A–5.C.
- Miller 5.1–5.2.
  - Jehle and Reny 3.1–3.2.

October 17

- MWG 5.D.
- Miller 5.3–5.5.
  - Jehle and Reny 3.3–3.5.

October 22

  - Moulin 3.2.
October 24

- MWG 15.A–15.B.
- Jehle and Reny 5.1.
- Moulin 3.6.

October 26
Optional Enrichment Lecture 1. Discrete Exchange Economies and Assignment Markets.

- Time & Location: TBA

October 29

- MWG 15.A–15.B.

October 31

- MWG 15.C.
- Jehle and Reny 5.3.

November 5
Lecture 16. First and Second Welfare Theorems.

- Jehle and Reny 5.2.

November 7

- MWG 19.A–19.C.
- Jehle and Reny 5.4.
November 14

- MWG 11.A–11.C.
- Miller 8.1–8.3.

November 16
Optional Enrichment Lecture 2. Existence of Walrasian Equilibrium.

- Time & Location: TBA
- MWG 17.A–17.C.
- Jehle and Reny 5.1–5.2.

November 19
Lecture 19. Catch-up / To Be Announced.

November 21
No Lecture (Thanksgiving Recess).

November 26
Lecture 20. Two-Sided Markets 1: One-to-one Matching.

  ◦ Moulin 3.3.

November 28

November 30
Optional Enrichment Lecture 3. Two-Sided Matching Markets with Financial Transfers.

- Time & Location: TBA

December 3


December 5


December 17
Final Exam.

- Time: 14.00–17.00
- Location: TBA
- The exam is closed book and covers the entire course.
- Non-graphing and non-programmable calculators are allowed. Other electronics are not allowed.