

API 109 Advanced Microeconomic Theory

Teaching Team

Instructor: Luis Armona larmona@hks.harvard.edu

TF:

CAs:

For all course questions, please send an email to api109questions@lists.hks.harvard.edu. The teaching team all have access to this mailing list and will respond as promptly as possible.

Schedule:

Class Meetings: Tuesday & Thursdays 10:30-11:45 in Starr Auditorium

Review Sessions: Friday 9:00-10:15 or 10:30-11:45 (Wexner 332)

Instructor Office Hours (OH): Wednesdays, 4:30pm-5:30pm, in Taubman 452

Isaacs TF OH: Monday, 4:30pm-5:30pm R-G-21 (Neustadt)

Jimenez CA OH: Tuesday, 3pm-4pm in L-G21A (Library Study Space)

Eyzaguirre CA OH: Thursday, 5:30pm-6:30pm in L-380

Liang CA OH: Thursday, 6:30pm-7:30pm in L-380

For some of the weeks of the quarter, the TAs will have different locations for their OH. Please See posts on Canvas for any updates in a particular week.

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, and understand the conceptual framework of modern microeconomic theory, and the fundamental “language” of economics. The course is a graduate-level course in microeconomic theory with an eye toward policy applications in development economics.

Course Structure

The lectures will focus on the theoretical foundations of economics, presenting new material each lecture (except for those labeled as review). Students are expected to attend each lecture. If you are unable to attend on a particular day, please write to the instructor for lecture recordings. Lecture slides will be posted shortly after the lecture. In the Friday Sections, the TF will teach an application related to development and the material covered in class. Because there is a lot of material, there will be little time during lecture to cover applications, therefore it is *highly* recommended that you attend the Friday sections to better understand how the theoretical material can be applied in economic analysis. There are two available time slots for the Review Section, attend whichever you prefer according to your own schedule, the same material will be covered.

The TF, CAs, will each have hour long office hours, and the instructor will have 60 minute office hours. Use this opportunity to discuss the class material in a more personalized fashion. If you cannot make any of these, I may be available to hold short appointments with you one and one, as a last resort, to be scheduled via email to me.

Prerequisites

This course is intended for first-year MPA/ID students. If you are not in the MPA/ID program, you will be admitted only with the permission of the instructor and under extreme circumstances. If you are interested in taking a course on advanced microeconomic theory, you should consider taking API 111, which is cross-listed as ECON 2020a and HBS 4010, which is the analogous Ph.D. level course on microeconomic theory.

In terms of prerequisites for the course content, a comprehensive grasp of multivariate calculus is necessary. Familiarity with probability theory, optimization, and linear algebra are extremely helpful. Because mathematical proofs are a core part of microeconomic theory, a comfort level with this sort of reasoning will be extremely helpful for understanding the material, though students will not be asked to do proofs themselves. Otherwise, supplementary knowledge for handling the course material will be handled at the MPA/ID Math Camp.

Course Materials

I will teach primarily out of Nolan Miller's Notes on Microeconomic Theory (NM). These are publicly available and can be downloaded here: <https://nmiller.web.illinois.edu/notes.html>

The standard core textbook for advanced microeconomic theory is "Microeconomic Theory" By Mas-Colell, Whinston, and Green (MWG). I will assign analogous passages from this textbook to each NM reading. Students are not required to purchase the textbook. This textbook is more mathematically rigorous and detailed compared to NM, and may be helpful for reviewing the material if you would like a more comprehensive understanding of the material. However, class content is entirely understandable from the Nolan Miller Notes. I will upload material to the Canvas website when these are required readings, along with lecture slides and any other supplementary readings recommended before each lecture.

Course Assignments:

The course will be graded based on six problem sets, a midterm, and a final exam.

Course grades will be adjusted based on overall performance, and in line with the grading curve of other HKS courses.

Grade Components:

- Problem Sets (6 total): 30%
- Participation: 10%
- Midterm: 20%
- Final: 40%

Letter Grades will be allocated based on the Dean’s recommended grade distribution, as seen below:

A	A-	B+	B	B- or lower
15%	25%	35%	20%	5%

This means that the top 15% of students in terms of grades get an A, the top 15%-40% get an A-, etc.

Problem Sets

Problem sets will be due on Fridays at noon, approximately every 2 weeks, except around the midterm. Problem sets *must* be uploaded online to Canvas in PDF form before this time. Students may upload problem sets multiple times before the deadline if they update their answers. As a general rule, *no late problem sets will be accepted except under extreme circumstances*. Grading of problem sets will be done on the basis of a “Check+/Check/Check-/No Credit” system. You are encouraged to work on these problem sets in groups of no more than four students. However, you must hand in independently written solutions. Please identify all students you worked on the problem set with if you worked in a group. Problem sets are the primary way course material is actually learned. If in a group, I encourage you to try all problems on your own, then meet to discuss the reasoning each group member had for each problem in the assignment. The exam questions, which comprise the vast majority of the grades, will be similar to the problem sets, so excelling on these questions will be the best way to prepare for the exams. The

Problem set due dates are below:

- Problem Set 1: 9/12
- Problem Set 2: 9/26
- Problem Set 3: 10/8 (**Wednesday**)
- Problem Set 4: 10/24
- Problem Set 5: 11/14
- Problem Set 6: 12/05

Exams

Exams are in-person and scheduled for the following dates:

- Midterm Exam: 10:30–11:45, October 14, 2024. Note it is during Lecture time.
- Final Exam: 09:00–12:00, December 17, 2024.

Both exams are in-person, and will be open book, however *no computers will be allowed*, so you should print the lecture notes in advance of exams. If you know you cannot make these dates, and there are exceptional circumstances as to why you cannot attend, please contact me directly and we may discuss alternative options.

Academic Integrity

Students are encouraged to work together and discuss class material and assignments. What is important is the eventual understanding of material achieved, and less about how that is achieved. Any exam, paper

or assignment you submit is presumed to be your own original work, so if you do – as you will – use words or ideas written by other people, please make sure to cite these appropriately, and to indicate other students with whom you have collaborated. It is also a violation of the HKS Academic Code to incorporate into your coursework text produced predominantly by generative AI. More information about Harvard’s policies on academic integrity may be found in the Student Handbook.

Accessibility and Accommodations for Student Learning

Harvard University values inclusive excellence and providing equal educational opportunities for all students. Our goal is to remove barriers for disabled students related to inaccessible elements of instruction or design in this course. If reasonable accommodations are necessary to provide access,

please contact the local disability coordinator, Melissa Wojciechowski St. John (melissa_wojciechowski@hks.harvard.edu). She is the Senior Director of Student Services in the HKS Office of Student Services. Accommodations do not alter fundamental requirements of the course and are not retroactive. Students should request accommodations as early as possible, since they may take time to implement. Students should notify Melissa at any time during the semester if adjustments to their communicated accommodation plan are needed

Course Schedule

Date	Lecture #	Topic	Required Reading	Suggested Reading
09/02	1	Intro + Applications of Constrained Optimization.	Syllabus	Duflo, Esther. "The economist as plumber." American Economic Review 107.5 (2017): 1-26.
09/04	2	Utility and Budgets	NM 3.2, 2.1	MWG 2.A-2.C, 3.C
09/9	3	Demand Functions I: Demand Properties and Comparative Statics	NM 2.2-2.5	MWG 2.E
09/11	4	Choice Theory I: Utility Maximization	NM 3.3	MWG 3.D
09/16	5	Choice Theory II: Expenditure Minimization	NM 3.4 (up to and including 3.4.3)	MWG 3.E-3.G Do Consumer Price Subsidies Really Increase Nutrition?
09/18	6	The Slutsky Equation and Duality	NM 2.6-2.7, 3.4.5-3.4.6	MWG 2.F Poverty effects of food price escalation: The importance of substitution effects in Mexican households
09/23	7	Welfare Evaluation	NM 3.4.7-3.4.8	MWG 3.I
09/25	8	Aggregating Demand	NM 4.1-4.3	MWG 4
09/30	9	Endowments and Intertemporal Choice	NM 4.4-4.6	MWG 15.B 20.A, 20.B
10/02	10	Choice Under Uncertainty I: Expected Utility Maximization	NM 6.1	MWG 6.A-6.B

10/07	11	Choice Under Uncertainty II: Risk Preferences	NM 6.2-6.4	MWG 6.C-6.E
10/09	12	Midterm Review (L1-11)		
10/14		MIDTERM		
10/16	13	Producer Theory I: Production Technology	NM 5.1, 5.2, 5.5, 5.8	MWG 5.A, 5.B, 5.C (up to Cost Minimization Section, p. 139) 5.D
10/21	14	Producer Theory II: Duality and Aggregation in Production	NM 5.3, 5.4, 5.6, 5.7, 5.9	MWG 5.C (Cost Minimization Section) 5.E-5.G
10/23	15	Monopoly	NM 9.1, 9.2, 9.4	MWG 12.B, Nonconvex Production Technologies and Marginal Cost Pricing Section of MWG 16.G (p.570-572 Méndez, Esteban, and Diana Van Patten. "Multinationals, monopsony, and local development: Evidence from the united fruit company." <i>Econometrica</i> 90.6 (2022): 2685-2721.
10/28	16	Monopsony And Natural monopoly	NM 9.4	MWG
10/30	17	Partial Equilibrium I: Competitive Equilibrium	NM 7.1, 7.2	MWG 10.A-10.C Banerjee, Abhijit,

				<p>et al. "From proof of concept to scalable policies: Challenges and solutions, with an application." <i>Journal of Economic Perspectives</i> 31.4 (2017): 73-102.</p> <p>Buera, Francisco J., Joseph P. Kaboski, and Yongseok Shin. "The macroeconomics of microfinance." <i>The Review of Economic Studies</i> 88.1 (2021): 126-161.</p>
11/04	18	Partial Equilibrium II: Welfare Theorems	NM 7.3	MWG 10.D-10.E
11/06	19	Partial Equilibrium III: Comparative Statics and Regulation	NM 7.4	
11/11		NO CLASS (Veteran's Day)		
11/13	20	General Equilibrium: An Overview		
11/18	21	Externalities and Public Goods	NM 8	MWG 11.A-11.C
11/20	22	Oligopoly, Market Power, and Competition	NM 9.5	
11/25		NO CLASS (Early Thanksgiving Break)		
11/27		NO CLASS Thanksgiving Recess		

12/02	23	Final Review 1		
12/04	24	Final Review 2		
12/17	FINAL	From 9am to noon		