

ECON 101 (Fall 2021) Intermediate Microeconomics

Rakesh Vohra

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Lectures: Two 1.5 hour lectures a week.

Recitations: For each section there is one recitation a week. In each, a TA will cover the solutions to some of the problems in the review packet that will be relevant for that week's homework. The remainder of the time is for Q&A.

Office Hours: Each TA as well as myself will hold 2 hours of office hours each week (some of these will be conducted via Zoom) for a total of 10 hours. Times will be posted on CANVAS. If you plan to attend *please let the relevant person know in advance* so as to manage congestion.

Assessment: The final grade will depend upon 7 homeworks, 3 exams and one final exam (during finals week).

Covid: A change in conditions could necessitate a move to on-line only. In this case, I reserve the right to modify the syllabus to account for this.

Description

Microeconomics is the formal study of how individuals respond to incentives and its effect on social outcomes. Attention will focus on how the terms of trade between buyers and sellers are set. The course emphasizes the development of the mathematical tools needed to think carefully about incentives and necessitates a taste for long chains of reasoning.

The course is *not* a laundry list of facts too memorize or recipes to follow. Its purpose is to change the way you think. This will be accomplished by posing questions whose answers will challenge your intuition. Faithfully recording the answers and reproducing them is insufficient. One must understand the reasoning process by which one arrives at them.

The course requires that one perform computations that, by themselves, are unimportant, but are useful to convince oneself of things that one might at first disbelieve. Regular homework assignments will allow one practice at these things. Recorded recitations will cover problems from a file of review problems (with solutions) (*ReviewProb-101.pdf*) posted on CANVAS. I will post the problems to be covered in advance via CANVAS. The problems for each session are selected to mirror those on the homework. Some, but not all, of the problems are of the

cookbook variety. The non-cookbook problems are designed to tax your reasoning faculties rather than ability to pattern match.

The class is not a spectator sport, don't approach it as such. Inspecting the answer to a problem or following the reasoning of another is insufficient to master the material; one needs to attempt problems and work through difficulties on one's own before turning to the solution. If thinking were easy, everyone would be doing it.

Course Material

1. A copy of the entire slide deck is posted on CANVAS (which will be updated from time to time).
2. Optional for the course is:
Prices and Quantities: Fundamentals of Microeconomics
by yours truly. An electronic version (with limitations) is available through Penn libraries:
<https://doi-org.proxy.library.upenn.edu/10.1017/9781108773218>

CANVAS is used to post announcements, slides, homework assignments, video recordings and other important materials. You are responsible for regularly checking, downloading and reading materials posted on the site, as they form an integral part of the class. **These materials are *not* for distribution to those outside of the current class.** While they are for your use, they are not yours to do with as you wish. *Sic Vos Non Vobis*. The use of *Piazza* for Q&A outside class and discussion of course material is encouraged. It is not to be used as a homework checking service.

Grade: It will depend on 7 Homeworks each graded out of 10 points (15 % of grade), three timed in-class exams graded out of 20 points (each worth 15% of grade) and one timed in-class final exam, graded out of 30 points. (40% of grade). No scores are dropped.

Exams: *Open book* with calculators (even scientific) permitted, but no 'smart' devices such as tablet, laptop or phone with intelligence exceeding that of a plant. Attendance is mandatory. Students who miss an exam for an allowable reason *must* report their absence on the Course Absence Reporting (CAR) System.¹ There are

¹<http://economics.sas.upenn.edu/undergraduate-program/course-information/guidelines/policies> has a list of valid excuses for missing an exam.

no make-up exams; students excused by me from an exam will see the weights on the *subsequent* exams and final adjusted upwards to account for the absence.

The final exam is given at the time and date set by the Registrar. No assistance may be given or received during an exam.² You are expected to abide by the Code of Academic Integrity in the completion of assignments, papers and exams.

Homework: Homework assignments to be submitted via CANVAS as a single PDF file on the due date. Use a scanning app like Dropbox or Genius to create the single PDF. **No late work is accepted** and there are *no* make-up homeworks. Students excused by me (see above) from an exam or homework will see the weights on the *subsequent* homeworks adjusted upwards to account for the absence.

Write-ups must be your original work. The use of materials containing solutions or partial solutions to the assignments (including solutions prepared by current or former students) is contrary to Penn's code of academic integrity.³ If your solutions contains information from outside sources, you should properly acknowledge this.

While you are required to complete the assignments individually, I don't wish to discourage learning from one's peers. This leaves room for ambiguity, so I will try to make expectations as clear as possible. In brief:

1. Discussing the *general* ideas behind the problems is permitted.
2. Writing formal solutions should be *completely individual*, done in the equivalent of separate rooms.

As discussions of general ideas gradually become more specific, some judgment is unavoidable, but here's the kind of interaction I have in mind: If a peer conveys an idea which seems central to the solution, *do not write it down....immediately*. Approach the problem again on your own as if afresh, influenced by however much of their idea you remember. If you can re-create it without notes, you have mastered it, and I'm happy to give you credit. In this way we can let everyone help each other learn, while steering a wide berth around simple copying.

Course Calendar

These dates are not fixed in stone. I reserve the right to change them to adjust

²The Economics Department Course Policies, which include rules about exam attendance, make-up exams, grading appeals, etc., are available at: <http://economics.sas.upenn.edu/undergraduate-program/course-information/guidelines/policies>

³<https://catalog.upenn.edu/pennbook/code-of-academic-integrity/>

to the pace of the class.

- Sept 9: Homework 1 due
- Sept 14: Exam #1
- Sept 23: Homework 2 due
- Sept 30: Homework 3 due
- Oct 7: Homework 4 due
- Oct 11: **Drop period ends**
- Oct 19: Exam #2
- Oct 28: Homework 5 due
- Nov 4: Homework 6 due
- Nov 8: **Last day to withdraw**
- Nov 18: Exam #3
- Dec 2: Homework 7 due
- **Final Exam** in finals week on the date set by the registrar.

Prerequisites

Introductory microeconomics and macroeconomics (Econ 1 and 2); Math 104 and Math 114 or 115 or students who have received a B+ or better in Math 104 may take Econ 101 and Math 114 or 115 concurrently. Transfer students for Math 104 must complete Math 114 or 115 before enrolling in Econ 101. This course assumes multivariate calculus, and a **strong** understanding of these mathematical tools is crucial to success in the course.

1. Functions and Properties of Functions

- Monotonicity
- Continuity
- Concavity and Convexity
- Logarithmic functions

- Homogeneous functions

2. Derivatives

- How to take a derivative
- Product and Quotient Rules
- Chain Rule
- Partial derivatives
- Total derivatives

3. Solving optimization problems

- Unconstrained optimization: find the extrema of a function (maxima/minima)
- Constrained optimization: Method of substitution and Lagrange
- Second order conditions
- Comparative statics of solution and optimal value functions

Course Outline

Week 1: Rational Buyer Model Chapter 1 of *Prices & Quantities*.

Week 2: Monopoly Pricing & Elasticity Chapter 2 of *Prices & Quantities*.

Week 3: Monopoly Pricing & Costs Chapter 1 & 2 *Prices & Quantities*.

Week 4: Welfare & Price Discrimination Chapter 3 from *Prices & Quantities*.

Week 5: Bundling & Versioning Chapter 3 from *Prices & Quantities*.

Week 6 & 7: Imperfect Competition Chapter 4 from *Prices & Quantities*.

Week 8 & 9: Imperfect Competition Chapter 4 from *Prices & Quantities*.

Week 10: Consumer Theory Chapter 5 from *Prices & Quantities*.

Week 11: Perfect Competition Chapter 6 from *Prices & Quantities*.

Week 12: Perfect Competition Chapter 6 from from *Prices & Quantities*.

Week 13: Perfect Competition Chapter 6 from from *Prices & Quantities*.

Week 14: Externalities Chapter 7 from *Prices & Quantities*.

Week 15: Externalities Chapter 7 from from *Prices & Quantities*.

How to Prepare for the Final Exam

1. Space your practice out rather than compressing it into a short period.
If you spread five hours of study into one hour a day, you'll remember more than if you study for five hours on one day.⁴ Memories have a short half-life and need reinforcement.
2. Practice retrieving information rather than recognizing it.
Don't mistake the ability to recognize something for an ability to recall it. In an exam you don't get marks for things being familiar, you get marks for recalling relevant information and using it to answer the question.
3. Figure out what you don't know.
Revision is not for reassurance but to identify what you don't know or understand.
4. Rehearse.
No one has learnt how to swim from YouTube. Study for an exam by testing yourself on writing full answers under exam conditions.

⁴It works in reverse for chocolate.