Economics 201A: Economic Theory (first half)

Tu-Th 11:00–12:30

Barrows 170

1   Description

Economics 201A is the first semester of the required microeconomic theory sequence for first-year Ph.D. students in the economics department. The first half of the fall semester focuses on choice theory, consumer theory, producer theory, and expected utility theory. The second half will cover general equilibrium. (A separate syllabus will be distributed for the second half.) The last meeting of this half will be on Thursday October 17. The general equilibrium material begins on Tuesday October 22.

The theory sequence prepares Ph.D. economics students for economic research. While qualified students from other departments are welcome, this course is not designed to teach microeconomic principles for application in other disciplines. Students are assumed to already understand microeconomics at an advanced undergraduate level.

2   Prerequisites and enrollment

The formal prerequisite for enrollment in 201A is a grade of B- or higher in Economics 204. A good grade in an advanced undergraduate course in real analysis, e.g. Mathematics 104, can be substituted for Economics 204 at the discretion of the Economics 204 instructor, Chris Shannon. The requirement for real analysis courses outside of Berkeley is coverage of general metric spaces beyond Euclidean space. If you received a waiver from Professor Shannon, forward that email to me. There are no exceptions to the prerequisite. The enrollment is cross-verified with the prerequisites at several points in the semester. **Anyone enrolled in the course without the prerequisite, including anyone who received an unsatisfactory grade in 204, will receive an F grade for 201A regardless of course performance. Please answer the "Prerequisite survey" on the course website under "Quizzes" that asks you to describe how you satisfy the prerequisite.**

Berkeley undergraduates who wish to enroll must have passed Mathematics 104 (Real Analysis). **As a department policy, visiting students in the BESAP program are not allowed to enroll in 201A.**

If you are not yet enrolled, please send me an email. I will pass your name to the graduate advisor who will provide you with a permission number to enroll. Processing enrollment usually takes at least two weeks.

All students must register to receive a letter grade in the class. The class cannot be audited or taken on a credit/no-credit basis. **Anyone registered on a credit/no-credit basis will receive a no-credit grade.** Auditing 201A is officially prohibited.

3   Instructors and office hours

- David Ahn. Th 1–3pm at 509 Evans; `dahn[at]econ.berkeley.edu`

- Dong Wei (until 9/23). F 8–10am and F 3–5pm 636 Evans at 630 Evans; `dongwei.2014[at]gmail.com`

- Cristian Ugarte (after 9/24). M 2–4pm, F 9–10am, and F 3–4pm at 630 Evans; `cugarte[at]berkeley.edu`

Dong will cover sections and office hours until Monday September 23. Cristian will cover sections and office hours from Tuesday September 24 onward.

If you plan on visiting my office hours, please try to send me an e-mail the day before. While students who give prior notice have priority, you are of course welcome to stop by without notice. I can also answer short questions over e-mail. I am very happy to make an appointment if the regular office hours are inconvenient for you. For basic questions regarding the course material (e.g., help with understanding a step of a proof, questions about the solution of a problem, a review of Taylor expansion or other mathematical basics), please consult one of the GSI's.

4   Grading

The grade for the first half of the course is determined by an out-of-class midterm on the evening of **Monday October 21**. The numerical grades from the first and second halves are weighted equally. The final grade is an average of z-scores, $(X_i - E[X])/Std[X]$, for each half, where X_i is student i's score, $E[X]$ is the mean score, and $Std[X]$ is the standard deviation. There is no adjustment for improvement. The median grade is typically a B+. In principle, everyone can pass. Usually at least two students receive a C, and five to seven receive a grade of B– or worse.

The midterm is closed book and closed note, but any definition or result required to finish a problem will be provided. Students requiring special accommodations for the midterm should immediately notify me. Midterm scores will only be reconsidered for clerical or accounting errors, e.g., a miscalculation of the total.

Weekly problem sets will be due on Tuesdays. Each problem set reviews material from prior lectures and previews upcoming material for future lectures. Problem sets are due at the beginning of class. After two problem sets, a coin will be flipped to decide which of the two is graded. While problem set grades are not an explicit component of the grade, they provide the best way to learn the material and to prepare for the midterm. In cases where the midterm grade is on the border between two letter grades, problem set grades will be used to determine the final letter grade.

There will also be short surveys and practice quizzes on the course website before each Thursday lecture. These are not officially graded, and are meant to provide feedback about one's understanding of prior material and to preview future material and discussion.

All students are accountable to the Academic Honor Code. Students should discuss problems collaboratively, but produce independent final solutions. Anyone caught cheating on an exam will receive a failing grade in the course and be reported to the University Center for Student Conduct.

No electronic devices, including cell phones, computers, and tablets, may be used during lectures. There is evidence that these devices deteriorate learning outcomes for the user and distract other students. Using an electronic device in class will result in a one-point deduction from the midterm exam grade.

Looking ahead, the final exam for the course covering the general equilibrium material in the second half will be during the final exam period assigned by the Registrar on **8:00am–11:00am Wednesday December 18** .

5 Website

The course website is hosted on the Berkeley bCourses system:

https://bcourses.berkeley.edu/courses/1485235

Course notes, quizzes, problem sets, solutions, and class announcements will be posted there. The website is not publicly available. If you are not yet enrolled, please contact one of the GSI's with your email address and your UID (which you can look up for yourself on the Berkeley online directory) so you can be added to the participant list and access the website.

6 Course materials and textbooks

The course material will mainly draw from the course notes. The notes almost certainly contain errors and typos, please bring these to my attention as you notice them. **You are expected to have read the relevant course notes, at a desk with paper and pencil, *before* each class.** You are especially urged to attempt the exercises as you read the notes. This prior reading is assumed and lectures will be difficult to follow without reading beforehand.

No books are required, but the following books are recommended:

- D. M. Kreps, *Notes on the Theory of Choice*, Westview Press, 1988

- A. Mas-Colell, M. D. Whinston, and J. Green, *Microeconomic Theory*, Oxford University Press, 1995

- A. Rubinstein, *Lecture Notes in Microeconomic Theory*, Princeton University Press, 2016

The course structure most closely follows Professor Ariel Rubinstein's book, which is also available freely online at his website with registration.

7 Outline for first half

1. Preference, choice, and utility Kreps §2–3; MWG §1,2.F,3.B,3.C; Rubinstein §1–3

Preference relations, Choice rules, Rationalizable choice, Revealed preference, Houthakker's Axiom, Sen's α and β, Application: consumer choice, Utility functions, Continuity of preference, Debreu's Theorem, Structural properties of utility, Quasi-linear utility

2. Consumer behavior and demand

   MWG §2–4; Rubinstein §4–6

   Walrasian demand, Berge's Theorem, Continuity of demand, Implicit Function Theorem, Differentiability of demand, Smooth comparative statics, Monotone comparative statics, Hicksian demand, Duality, Slutsky matrix, Generalized Axiom of Revealed Preference, Afriat's Theorem

3. Production and supply

   MWG §5; Rubinstein §7

   Production sets, Properties of supply, Aggregate and centralized supply, Separating Hyperplane Theorem, First and Second Welfare Theorems of supply

4. Choice under uncertainty

   Kreps §4–9,14; MWG §6; Rubinstein §8,9)

   Independence, Archimedean axiom, Mixture Space Theorem, von Neumann–Morgenstern Expected Utility Theorem, Application: Becker–DeGroot–Marschak mechanisms and preference reversals, State-Independence, Monotonicity, Subjective probability, Anscombe–Aumann Expected Utility Theorem, Absolute and comparative risk aversion, Arrow–Pratt measure of risk aversion