

ECONOMICS 100A: MICROECONOMICS

Spring 2018

Section A MWF 1:00-1:50, LEDDN

Section B MWF 2:00-2:50, LEDDN

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Office Hours: Tu 2-4 in Econ Bldg 111

Discussion Sessions (no sessions first week):

A01 CSB002; Tu 5:00pm-5:50pm

A02 CSB002; Tu 6:00pm-6:50pm

B01 CSB002; Th 5:00pm-5:50pm

B02 CSB002; Th 6:00pm-6:50pm

TAs (Office Hours in PSET lab, see below)

Jason Bigenho (jbigenho@ucsd.edu)

Wendy Zeng (w5zeng@ucsd.edu)

Alex Kellogg (adkellog@ucsd.edu)

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Course Objectives: As the first class in the micro sequence, Econ 100A is designed to teach you how to set up, solve, and analyze optimization models and apply these mathematical models to the theory of the consumer (commodity demand, labor supply, and consumption/savings decisions). Finally, we will examine the fundamentals of decision making under risk and uncertainty.

Required Texts:

- (1) Varian, H. R. 2014. *Intermediate Microeconomics with Calculus*. W. W. Norton & Company, Inc.
- (2) Mark Machina's Econ 100ABC Math Handout.

Web Resources: You are encouraged to take advantage of the following supplemental material for the 100ABC sequence, available free over the Internet.

(1) Martin Osborne's intermediate mathematics tutorial:

<http://www.economics.utoronto.ca/osborne/MathTutorial/index.html>

(2) Preston McAfee's Introductory textbook (this material is at a level between most microeconomics principles textbooks and Perloff's more advanced treatment.) <http://www.introecon.com/>

Weekly Homework: Each week on Friday, I will post practice problems on Ted. They will not be graded. The best way to prepare for the exams is to form study groups and practice doing the problem sets together. I will post the answers after the problems are reviewed in TA sessions.

If you need guidance working on homework problems, review Polya's Problem Solving Strategies (http://en.wikipedia.org/wiki/How_to_Solve_It) and come to the PSET or office hours.

Exams: Grading will be based on two midterms (25% each) and a final examination (50%). The final exam will be cumulative. You must take both midterms. All exams are closed book, and you may not use calculators and cell phones during the exams.

Regrade Requests: The midterm exams will be given back after your discussion sessions. You can ask for a regrade before you leave the room with your exam. Your whole exam will be regraded, and your score can go up or down. If you don't think you have enough time to look at your exam after the session, you can pick up your exam from my office during my office hours.

100AH: If you earn an A/A- grade in my class this quarter, I recommend that you take the one-unit honors class 100AH in the fall. Honors classes are capped at 20 students and you will get to know the faculty member well (important for getting letters of recommendation). These classes typically have you give a short presentation and write a short paper. Presenting and writing in the major are two valuable skills that are challenging for us to offer in large classes. I recommend you take advantage of the 100AH opportunity.

100A Problem Solving and Economics Tutoring Lab (PSET): Undergraduate and graduate TAs will be available to answer your questions in Econ 200 most evenings and on Sunday. In Econ 200 there is room for you to work on your homework and get your questions answered if you get stuck. We hope to offer PSET on MTWTh from 5:30-9:30pm and Sunday 2-6pm but please check the web page for actual hours: <http://economics.ucsd.edu/undergraduate-program/courses/pset-lab.html>

Supplemental Instruction (SI) is a peer-led study group program that targets difficult classes.

High achieving students who have previously taken the course or have strong content knowledge related to the course run the study sessions outside the classroom. The SI Leader facilitates the session in a way to help you work with the content and collaborate with peers who are taking the course as well.

SI works — data indicates that students who take advantage of SI earn better grades. In fact, 95% of the students who attended four or more SI sessions earned a higher grade in their courses and overall GPA (per data on SI support for Calculus and pre-Calculus at UC San Diego).

Supplemental Instruction Overview

- Involves weekly study sessions (3 per week) run by highly trained SI student leaders
- Targets high-risk courses
- Includes your instructor in the process
- SI Leader is in class each day with you

Supplemental Instruction is a key way to support your learning in this course. The peer-to peer interactions provides you with a session to explain, explore and elaborate what you know. Simultaneously, it allows you to clarify what you might struggle to understand.

SI schedule:

Tuesday 1pm	Center 316
Thursday 1pm	TLC 1505
Friday 4pm	TLC 1505

Easter Egg: I planted an intentional mistake into the solution of one of the problems in one of the problem sets. This is a significant conceptual error and not a typo. The first student to find this mistake and successfully explain to me why the solution is wrong (during my office hours) as well as offer the correct solution will see his/her score for the final multiplied by 1.2.

Schedule:

Week	Topic	Text Ch./ Math Handout Section	Video
1	Mathematical Review #1	Sections B and C	A1, A2
2	Consumer Preferences, Utility, Budget Constraint	2, 3, and 4	C1, C2a
Midterm 1, April 27th (5:00-5:50 in PETER 108 and PETER 110)			
3	Mathematical Review #2	Sections D and E	A4
4, 5	Utility Maximization and Demand Functions	5 and 6	C2
6, 7	Comparative Statics of Demand	8	C3-C7
Midterm 2, May 25^h (5:00-5:50 in PETER 108 and PETER 110)			
8	Supply of Labor	9	C8
9	Supply of Saving	10	C9
10	Decision Making Under Risk and Uncertainty	12	C10
Final (Sec. A – June 14th, 11:30-1:30; Sec. B – June 15th, 3:00-5:00)			

FAMOUS OPTIMIZATION PROBLEMS IN ECONOMICS

Optimization Problem	Objective Function	Constraint	Control Variables	Parameters	Solution Functions	Optimal Value Function
Consumer's Problem	$U(x_1, \dots, x_n)$ utility function	$p_1 \cdot x_1 + \dots + p_n \cdot x_n = I$ budget constraint	x_1, \dots, x_n commodity levels	p_1, \dots, p_n, I prices and income	$x_i(p_1, \dots, p_n, I)$ regular demand functions	$V(p_1, \dots, p_n, I)$ indirect utility function
Expenditure Minimization Problem	$p_1 \cdot x_1 + \dots + p_n \cdot x_n$ expenditure level	$U(x_1, \dots, x_n) = u$ desired utility level	x_1, \dots, x_n commodity levels	p_1, \dots, p_n, u prices and utility level	$h_i(p_1, \dots, p_n, u)$ compensated demand functions	$e(p_1, \dots, p_n, u)$ expenditure function
Labor/Leisure Decision	$U(H, I)$ utility function	$I = I_0 + w \cdot (168 - H)$ budget constraint	H, I leisure time, disposable inc.	w, I_0 wage rate and nonwage income	$168 - H(w, I_0)$ labor supply function	$V(w, I_0)$ indirect utility function
Consumption/Savings Decision	$U(c_1, c_2)$ utility function	$c_2 = I_2 + (1+i) \cdot (I_1 - c_1)$ budget constraint	c_1, c_2 consumption levels	I_1, I_2, i income stream and interest rate	$c_1(I_1, I_2, i), c_2(I_1, I_2, i)$ consumption functions	$V(I_1, I_2, i)$ indirect utility function
Long Run Cost Minimization	$w \cdot L + r \cdot K$ total cost	$F(L, K) = Q$ desired output	L, K factor levels	Q, w, r desired output and factor prices	$L(Q, w, r), K(Q, w, r)$ output-constrained factor demand functions	$LTC(Q, w, r)$ long run total cost function
Long Run Profit Maximization (in terms of Q)	$P \cdot Q - LTC(Q, w, r)$ total profit	none	Q output level	P, w, r output price and factor prices	$Q(P, w, r)$ long run supply function	$\pi(P, w, r)$ long run profit function
Long Run Profit Maximization (in terms of L and K)	$P \cdot F(L, K) - w \cdot L - r \cdot K$ total profit	none	L, K factor levels	P, w, r output price and factor prices	$L(P, w, r), K(P, w, r)$ factor demand functions	$\pi(P, w, r)$ long run profit function