ECONOMICS 100A: MICROECONOMICS

Spring 2016
Section A MWF 11:00-11:50, CENTR 216
Section B MWF 12:00-12:50, CENTR 216

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Office Hours: Tu 2-4 in Econ Bldg 111

TAs	Session place/time	Office, Office Hours
Sec. A: Erik Lillethun elilleth@ucsd.edu	PCYNH 122; M 7:00p-7:50p	ECON 122; M 9-11
Sec. A: Erik Lillethun elilleth@ucsd.edu	PCYNH 122; M 8:00p-8:50p	ECON 122; M 9-11
Sec. B: Vincent Leah-Martin vleahmar@ucsd.edu	PETER 104; Th 7:00p-7:50p	ECON 124; Th 9-11
Sec. B: Vincent Leah-Martin vleahmar@ucsd.edu	PETER 104; Th 8:00p-8:50p	ECON 124; Th 9-11

Tutoring Center TA: Dodge Cahan (dcahan@ucsd.edu) – present in the lab on M, W, and Th.

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.

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: I will give back the midterm exams in class. 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 class, you can pick up your exam from my office during my office hours.

100A Tutoring Center: M 5-7pm, Tu 5-7pm, W 7-9pm, Th 7-9pm, Su 1-3pm in ECON 200 (there will not be lab in week 1 and the weeks after midterms). Undergraduate TAs (and a graduate TA on M, W, and Th) will be available to answer your questions. There is room for you to work on your homework and get your questions answered if you get stuck.

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 22 (6:00pm-6:50pm in WLH 2001);		
3	Mathematical Review #2	Sections D and E	A4
4, 5	Utility Maximization and Demand Functions	5 and 6	C2
	No class on Friday, April 29		
6, 7	Comparative Statics of Demand	8	C3-C7
	Midterm 2, May 20 (6:00pm-6:50pm in WLH 2001);		
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 10, 11:30-1:30 in CENTR 216; Sec. B – June 8, 11:30-1:30 in CENTR 216)		

FAMOUS OPTIMIZATION PROBLEMS IN ECONOMICS

Optimization Problem	Objective Function	Constraint	Control Variables	Parameters	Solution Functions	Optimal Value Function
Consumer's Problem	$U(x_1,\ldots,x_n)$ utility function	$p_1 \cdot x_1 + \ldots + p_n \cdot x_n = I$ budget constraint	$x_1,\ldots,x_n$ commodity levels	$p_1,\ldots,p_n, I$ prices and income	$x_i(p_1,\ldots,p_n,I)$ regular demand functions	$V(p_1,\ldots,p_n,I)$ indirect utility function
Expenditure Minimization Problem	$p_1 \cdot x_1 + \ldots + p_n \cdot x_n$ expenditure level	$U(x_1,\ldots,x_n) = u$ desired utility level	$x_1,\ldots,x_n$ commodity levels	$p_1,\ldots,p_n, u$ prices and utility level	$h_i(p_1,\ldots,p_n, u)$ compensated demand functions	$e(p_1,\ldots,p_n, u)$ 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