ECONOMICS 100A: MICROECONOMICS

Summer 1 2020, Zoom ID: 883-658-9887 **Maxim Sinitsyn, msinitsyn@ucsd.edu**
MW 8:00am-10:50am **Office Hours: MTW 1:00-2:00**

Discussion Sessions:
Th 9:00am-10:50am

TAs	*Office Hours*	*Zoom ID*
Evgenii Baranov (evbarano@ucsd.edu)	M 7:00pm-9:00pm	632-246-1561
Mengyan Han (meh076@ucsd.edu)	T 3:00pm-5:00pm	599-701-7460

Study Group Sessions: Fridays 9:00am-10:20 at https://ucsdcommons.adobeconnect.com/econ100a_b00_sg/
Heather Song (y5song@ucsd.edu)

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.

Course Structure: The course will contain live lectures. All of the live sessions will be recorded and made available on Canvas.

Required Texts:
(1) Perloff's Microeconomics: Theory and Applications with Calculus. The e-book is on our class web under Redshelf. The e-book costs $47 and you will have access for 4 years. You can use the e-book for free for one week. NOTE: this is an opt-out system: if you don't want the e-book, you must opt out or you will be charged for the book. This book will be used in 100B and 100C the following year, too. So, it costs $15.67 per quarter to use this book in intermediate micro!
(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, I will post practice problems on Canvas. 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 after you spent several hours working on them on your own. I will post the answers after the problems are reviewed in TA sessions. The discussion sessions will be live and will be recorded.

If you need guidance figuring out strategies on how to approach more challenging homework problems, you might find helpful Polya's Problem Solving Strateges (http://en.wikipedia.org/wiki/How_to_Solve_It) and visiting office hours.

Exams: We will have four tests in this class (including the final exam). The first three tests will take place during the class time on Wednesdays of weeks 2, 3, and 4. The last test will take place during the scheduled time of the final exam for this class. Each test will carry equal weight of 25% each. All exams are closed book, but you can use a calculator. While I will do what I can to keep to this structure of the assessments for this course, the evolving situation may make it necessary for me to make a change.

Bonus Quizzes: After each of the first three exams (but not after the final exam) is graded, I will post a bonus quiz on Canvas. It will not have a time limit and will be available for three days. If a student who scored below a C- on the exam successfully completes this quiz, the difference between C- and their score will be halved. For example, if a C- cutoff on an exam is 18pts and a student received 12pts, by successfully completing the quiz, their score will become 15pts. Everyone is encouraged to work on those problems, but the score will be increased only for the successful completion of the quiz by the students who scored below a C- on a test.

Academic Integrity: To protect academic integrity this quarter, we are likely using either Loom or Zoom. These programs use video and audio recording or other personal information capture for the purpose of facilitating the course and/or test environment. UC San Diego does not allow vendors to use this information for other purposes. Recordings will be deleted when no longer necessary. However, if cheating is suspected, the recording may become part of the student's administrative disciplinary record. Finally, I reserve the right to give an oral test if I feel it is necessary to uphold academic integrity.

Regrade Requests: You will have one week during which you can request a regrade of your exam. Your whole exam will be regraded, and your score can go up or down. You are allowed only one regrade request for the quarter. However, if you request is successful (your score goes up), you will get another regrade request.

Schedule:

Week	Topic	Perloff Chapter./ Video Math Handout Section	
1	Mathematical Review #1	Sections B and C	A1, A2
	Consumer Preferences, Utility, Budget Constraint	3.1-3.3	C1, C2a
2	Mathematical Review #2	Sections D and E	A4
	Utility Maximization and Demand Functions	3.4, 4.1	C2
3	Comparative Statics of Demand	4.2, 4.3, 5.1	C3-C7
4	Income and Substitution Effects		
5	Supply of Labor	5.4	C8
	Supply of Saving	15.2	C9

Final July 31th, 8:00am

FAMOUS OPTIMIZATION PROBLEMS IN ECONOMICS

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