

# ECONOMICS 100A: MICROECONOMICS

Fall 2020, Zoom ID: 883-658-9887  
MWF 3:00pm-3:50am  
MWF 4:00pm-4:50am

Maxim Sinitsyn, [msinitsyn@ucsd.edu](mailto:msinitsyn@ucsd.edu)  
Office Hours: Th 10:00-noon

## Discussion Sessions:

A01 W 1:00pm-1:50pm  
A02 W 2:00pm-2:50pm  
A03 W 4:00pm-4:50pm  
A04 W 12:00pm-12:50pm

B01 F 9:00am-9:50am  
B02 F 10:00am-10:50am  
B03 F 12:00pm-12:50pm  
B04 F 11:00am-11:50am

## TAs

Parker Rogers ([parogers@ucsd.edu](mailto:parogers@ucsd.edu))  
Danil Dmitriev ([ddmitrie@ucsd.edu](mailto:ddmitrie@ucsd.edu))  
Yibin Liu ([yil490@ucsd.edu](mailto:yil490@ucsd.edu))  
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Jordan Mitas ([jmitas@ucsd.edu](mailto:jmitas@ucsd.edu))

## Office Hours

W 10am-noon  
W 5pm-7pm  
F 5pm-7pm  
T 8am-10am  
F 1pm-3pm  
Th 8am-10am  
Th 5pm-6pm  
TTh 2pm-3pm  
M 11am-1pm  
T 5pm-7pm

## Zoom ID

952-876-9733  
995-7448-5352  
999-123-8810  
982-860-5231  
919-362-7447  
591-031-2400  
985-6128-0572  
941-186-7904  
858-900-5484  
718-988-1127

Study Group Sessions: Th 7:00pm-8:20pm at [https://ucsdcommons.adobeconnect.com/econ100a\\_a00\\_sg](https://ucsdcommons.adobeconnect.com/econ100a_a00_sg)  
Shirley Qi ([yaq020@ucsd.edu](mailto:yaq020@ucsd.edu))

All questions regarding department or university policies, procedures, and processes (like class enrollments and waitlists, late adds, grading options for majors/minors, increasing seats/adding more sections) should be addressed to the Virtual Advising Center at [vac.ucsd.edu](http://vac.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) Varian's "Intermediate Microeconomics with Calculus," \$37.60 (+10-15% bookstore mark-up) as an e-book with 1 year access. Available in Canvas through the Redshelf platform. THIS IS AN OPT-OUT SYSTEM. Students MUST opt-out after two weeks or they will be charged (you will get lots of notification)
- (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 Varian'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.

*Exams:* We will have three tests in this class (including the final exam). The two tests during the quarter will take place during the times listed in your schedule – at 7pm on Fridays, 10/23 and 11/20. 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.

There will also be three quizzes worth 8% each. They will take place during your scheduled class time. I will announce the dates in advance.

Finally, the remaining point will be given for finishing the technology quiz given during the first week.

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 two 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:* We will be using LockDown Browser and a webcam for Canvas exams. I reserve the right to give an oral test if I feel it is necessary to uphold academic integrity.

This course requires the use of LockDown Browser and a webcam for online exams. The webcam can be the type that's built into your computer or one that plugs in with a USB cable.

Watch this brief video to get a basic understanding of LockDown Browser and the webcam feature.

<https://www.respondus.com/products/lockdown-browser/student-movie.shtml>

### **Download Instructions**

Download and install LockDown Browser from this link:

<https://download.respondus.com/lockdown/download.php?id=953813920>

### **Once Installed**

- Start LockDown Browser
- Log into Canvas

- Navigate to the quiz

Note: You won't be able to access a quiz that requires LockDown Browser with a standard web browser. If this is tried, an error message will indicate that the test requires the use of LockDown Browser. Simply start LockDown Browser and navigate back to the exam to continue.

### **Guidelines**

When taking an online quiz, follow these guidelines:

- Ensure you're in a location where you won't be interrupted
- Turn off all other devices (e.g. tablets, phones, second computers) and place them outside of your reach
- Before starting the test, know how much time is available for it, and also that you've allotted sufficient time to complete it
- Clear your desk or workspace of all external materials not permitted - books, papers, other devices
- Remain at your computer for the duration of the test
- If the computer, Wi-Fi, or location is different than what was used previously with the "Webcam Check" and "System & Network Check" in LockDown Browser, run the checks again prior to the exam
- To produce a good webcam video, do the following:
  - Avoid wearing baseball caps or hats with brims
  - Ensure your computer or device is on a firm surface (a desk or table). Do NOT have the computer on your lap, a bed, or other surface where the device (or you) are likely to move
  - If using a built-in webcam, avoid readjusting the tilt of the screen after the webcam setup is complete
  - Take the exam in a well-lit room, but avoid backlighting (such as sitting with your back to a window)
- Remember that LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted

### **Getting Help**

Several resources are available if you encounter problems with LockDown Browser:

- The Windows and Mac versions of LockDown Browser have a "Help Center" button located on the toolbar. Use the "System & Network Check" to troubleshoot issues. If an exam requires you to use a webcam, also run the "Webcam Check" from this area
- Respondus has a Knowledge Base available from [support.respondus.com](https://support.respondus.com). Select the "Knowledge Base" link and then select "Respondus LockDown Browser" as the product. If your problem is with a webcam, select "Respondus Monitor" as your product
- If you're still unable to resolve a technical issue with LockDown Browser, go to [support.respondus.com](https://support.respondus.com) and select "Submit a Ticket". Provide detailed information about your problem and what steps you took to resolve it

*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 your request is successful (your score goes up), you will get another regrade request.

*Schedule:*

Week	Topic	Text Chapter./ 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
3	Mathematical Review #2	Sections D and E	A4
4, 5	Utility Maximization and Demand Functions	5 and 6	C2
6, 7, 8	Comparative Statics of Demand	8	C3-C7
9	Supply of Labor	9.8	C8
10	Supply of Saving	10	C9
<b>Final (Section A, Dec 18<sup>th</sup>, 3:00pm; Section B, Dec 15<sup>th</sup>, 3:00pm)</b>			

# FAMOUS OPTIMIZATION PROBLEMS IN ECONOMICS

Optimization Problem	Objective Function	Constraint	Control Variables	Parameters	Solution Functions	Optimal Value Function
<b>Consumer's Problem</b>	$U(x_1, \dots, x_n)$ 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
<b>Expenditure Minimization Problem</b>	$p_1 \cdot x_1 + \dots + p_n \cdot x_n$ 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
<b>Labor/Leisure Decision</b>	$U(H, I)$ 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
<b>Consumption/ Savings Decision</b>	$U(c_1, c_2)$ 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
<b>Long Run Cost Minimization</b>	$w \cdot L + r \cdot K$ 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
<b>Long Run Profit Maximization</b> (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
<b>Long Run Profit Maximization</b> (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