

ECONOMICS 100B: MICROECONOMICS

Summer II 2019
MW 11:00-1:50, CENTR 216

Maxim Sinitsyn, msinitsyn@ucsd.edu
Office Hours: M, T 2-3 in Econ 111

TA
Ellen Liaw
eliaw@ucsd.edu

Session place/time
CENTR 216; Th 9:00-10:50

Office, Office Hours
SH 227; Th 11:00-1:00

Course Objectives: Econ 100B analyzes the theory of the firm and markets when there is price taking behavior. Topics include the theory of production, commodity supply and input demand in competitive markets, and competitive market equilibrium.

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 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. 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 notes, calculators and cell phones during the exams.

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 | Textbook Chapter | Video |
|------|--|------------------|-------|
| 1 | Theory of Production | Ch. 19 | D1 |
| | Midterm 1, August 14 | | |
| 2 | Theory of Cost | Ch. 22 | D2 |
| 3 | Profit Maximization and Supply Under Perfect Competition | Ch. 23 | D3 |
| | Midterm 2, August 28 | | |
| 4 | Demand for Factors of Production; Equilibrium, Dynamics & Comparative Statics of Perfectly Competitive Markets | Ch. 16 | E1 |
| 5 | General Equilibrium | Ch. 32 | E2 |
| | Final, September 7, 11:30-1:30 | | |

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 |