# ECONOMICS 100B: MICROECONOMICS

**Winter 2013**
**Section A MWF 3:00-3:50, Center Hall 101**
**Section B MWF 4:00-4:50, Center Hall 101**

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**Office Hours: Th 10-1 in Econ 111**

| TAs | Session place/time | Office, Office Hours | |
|---|---|---|---|
| Sec. A: Martha Gimbel | CENTR 119; Th 7:00pm-7:50pm | ECON 117; | W 12:00pm-2:00pm |
| Sec. A: Andrew Chamberlain | CENTR 119; Th 8:00pm-8:50pm | SH 139; | T 9:00am-11:00am |
| Sec. B: Veena Jeevanandam | WLH 2005; M 8:00pm-8:50pm | ECON 113; | M 9:30am-10:30am |
| Sec. B: Xuan Ding | WLH 2005; M 8:00pm-8:50pm | SH 206; | T 2:00pm-3:00pm |
| Sec. B: Kilian Tobias Heilmann | WLH 2005; M 9:00pm-9:50pm | ECON 116; | Th 3:30pm-5:30pm |

*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) Perloff, Jeffrey M. (2011) *Microeconomics: Theory and Applications with Calculus, 2$^{nd}$ edition*. Pearson/Addison-Wesley.
(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 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 three midterms (15% each) and a final examination (55%). The final exam will be cumulative. If you miss a midterm exam for a valid medical reason, you must inform me by e-mail no later than 24 hours after the exam and provide me with a doctor's note no later than one week after the exam. Then, the full weight of the midterm exam will be transferred to the final exam. 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 regarded, 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.


*Schedule*:

| Week | Topic | Text Ch./Math Handout Section |
|---|---|---|
| 1, 2 | Theory of Production | Ch. 6 |
| | **Midterm 1, January 25** | |
| 3, 4 | Theory of Cost | Ch. 7 |
| | **Midterm 2, February 15** | |
| 5, 6 | Profit Maximization and Supply Under Perfect Competition | Ch. 8 |
| 7 | Demand for Factors of Production | Ch. 15 |
| | **Midterm 3, March 1** | |
| 8 | Equilibrium, Dynamics & Comparative Statics of Perfectly Competitive Markets | Ch. 9 |
| 9, 10 | General Equilibrium | Ch. 10 |
| | **Final, March 20 (Section A), March 22 (Section B)** | |

# 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 |