ECONOMICS 100A: MICROECONOMICS Spring 2011

Tuesday, Thursday 11:00a-12:20p in Solis 107.

Instructor:

Dr. Melissa Famulari	mfamulari@ucsd.edu	Office: Econ 221	Hours: W 11:00a-2:00p

Graduate Teaching Assistants:

(1) Michael Futch	mfutch@ucsd.edu	Office: Seq Hall 228	Hours: TU 1-3:00p & TH 1-2:00p
(2) Matthew Gibson	magibson@ucsd.edu	Office: Econ 125	Hours: TH 12:45-2:45
(3) Jacob Johnson	j4johnson@ucsd.edu	Office: Seq Hall 236	Hours: M 2-4:00 W 10-11:00a
(4) Charles Lin	chl083@ucsd.edu	Office: Econ 124	Hours: TU 1-2:00p W 4-5:00p

Undergraduate Teaching Assistants:

(1) Daphne Chang	d9chang@ucsd.edu	Office: Seq Hall 244	Hours: TH 1:30-3:30
(2) Matthew Diamond	mcdiamon@ucsd.edu	Office: Seq Hall 139	Hours: M 1-3:00p
(3) Kimberly Fun	s1fung@ucsd.edu	Office: Seq. Hall 231	Hours: M-W 1:30-2:30 **except** April 20th (Wed): 10-11am and NOT 1:30-2:30 May 23rd (Mon): no OH and instead May 25th (Wed): 10-11am

Prerequisites: Econ 1 and either Math 10C or Math 20C or Math 21C.

Assessment: There are two inclass midterm exams, **Thursday, April 14** and **Thursday, May 12**, each of which is worth 22.5% of your grade. Homework accounts for 10% of your grade. The final exam is cumulative and is worth 45% of your grade. The date of the final is **Tuesday, June 7 from 11:30a-2:30p**

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 Materials:

Required Textbook and Reading:

(1) Perloff, Jeffrey M. (2007) *Microeconomics: Theory and Applications with Calculus*, Pearson/Addison-Wesley.

(2) Machina, Mark (2010) "Math Handout"

Additional Readings:

Other calculus-based intermediate textbooks that you could use to supplement Perloff include Walter Nicholson's, *Microeconomic Theory*, Hal R. Varian's, *Intermediate Microeconomics* and Binger and Hoffman's, *Microeconomics with Calculus*.

One free option is an online introductory textbook written by Preston McAfee of Caltech http://www.introecon.com/. The level of this book is between Econ 1 and Econ 100A. It is very interesting, free, and you may find it useful

Mathematics Tutorial for Economists: Written by Martin Osborne at the University of Toronto http://www.economics.utoronto.ca/osborne/MathTutorial/index.html, Chapters 1-6 of this will help you review the material that you learned in Math 10ABC or 20ABC that are the most important for this course.

Mandatory Discussion Sessions: These mandatory sessions are conducted by your TAs who will answer your questions regarding lectures, the textbook, practice problems and old exam problems.

WebCT: This is where you access the syllabus, class handouts, a discussion board, your grades, homework assignments, etc. I have also posted my old 100A exams to give you some additional practice. NOTE: Though I will not post answers to the old exams, you may find them a useful study tool.

Weekly Homework: There will be 7 homework assignments. I will post homework assignments on WebCT each Friday. On the following Thursday I will flip a coin in class. If it comes up heads, I will collect and grade the homework on a 0, 1 (serious effort on some problems), 2 (serious effort on all problems) scale. Performance on the graded homework will count for 10% of your grade.

Administrative Issues:

(1) If you have a documented disability, please bring your documentation to me as soon as possible so that I can make suitable accommodations for you. If you believe that you have a disability and desire accommodation, please register with the Office for Students with Disabilities

(2) Any student found guilty of academic dishonesty will earn a failing grade for the course. In addition to my academic sanction, the Council of Deans of Student Affairs will also impose a disciplinary penalty.

(3) EXAMS

a. You must bring your student ID to all exams.
b. You may only use a pen/pencil and a straight edge during exams.
    i. Exams are closed book and you may not use any notes.
    ii. Exams are electronic-free: you may not use calculators, headphones, cell phones, etc. during an exam
c. If you arrive late to an exam, I will allow you to take the exam in the time that remains *as long as no one has turned in his/ her exam and left the room*. Once a classmate has turned in his/her exam, you will earn a zero on the test if you arrive late.
d. There are no bathroom breaks during midterm exams.
e. If there is a mistake adding the points on your exam, bring it to my attention within one week of the exam being returned and I will correct it.
f. If you believe your exam has not been graded properly, you may request a regrade within one week of the exam being returned. I will regrade your entire exam. The regraded score will be your grade for the exam. You may not ask for another regrade or go back to your first grade.

Week	Text, Math Handout	Topic
(1) 3/29	Chapter 1 & 2 Calculus Appendix, A.1-A.3 Chapter 3: 60-74	I. Introduction II. Consumer Preferences: A. Axioms of Rational Choice B. Utility Functions C. Level curves of utility function: Indifference Curves D. Marginal Rate of Substitution
(2) 4/5	Chapter 3: 74-75, Calculus Appendix, A.4-A.6 Machina Handout	III. Common Utility Functions: Cobb-Douglas, Perfect Complements (Leontief), Perfect Substitutes, CES IV. The Budget Constraint V. Mathematical Review of Optimization
(3) 4/12	Chapter 3: 75-89	VI. Utility Maximization and Demand Functions **Midterm 1: Thursday, April 14**
(4) 4/19	Chapter 4: 93-110	VII. Comparative Statics of Demand A. Income changes B. Price changes (income and substitution effects)
(5) 4/26	Chapter 4: 111-126	VII. Comparative Statics of Demand (continued) C. Compensated price changes and compensated demand functions. D. Slutsky Equation
(6) 5/3	Chapter 5: 130-152	E. Demand Relationships among goods F. Measures of Consumer Welfare
(7) 5/10	Chapter 5: 152-164	**Midterm 2: Thursday, May 12** VIII. Supply of Labor: The Labor-Leisure Decision
(8) 5/17		VIII. Supply of Labor: The Labor-Leisure Decision (continued) IX. Supply of Saving: The Consumption-Savings Decision
(9) 5/24	Chapter 16	X. Decision Making under Risk and Uncertainty
(10) 5/31		X. Decision Making under Risk and Uncertainty (continued)

Final Exam: Tuesday, June 7 from 11:30a-2:30p

ECON 100A COURSE OUTLINE – Spring 2011

I. INTRODUCTION

Domain of Microeconomic Analysis

Circular Flow Diagram

Stocks vs. Flows and the Dimensions of Economic Variables

II. CONSUMER PREFERENCES: UTILITY FUNCTIONS & INDIFFERENCE CURVES

Commodities, Commodity Bundles and Preferences

- Commodities are Typically *Flows*, not *Stocks*
- Issue of Divisibility
- Weak Preference, Strict Preference and Indifference Relations

Utility Functions

- Preferences are Defined over Commodity Bundles, *not* Individual Commodities
- Utility Functions and Total Utility Curves
  - Important Examples: Linear, Cobb-Douglas, Leontief, Quasi-Linear
- Marginal Utility and Marginal Utility Curves
  - Hypothesis of Diminishing Marginal Utility
- Monotonic Transformations of Utility Functions

Calculus Review (Math Handout, Section A)

- Approximation Formulas for Small Changes in Functions (Total Differentials)

Level Curves of Functions (Math Handout, Section C)

- Definition and Graphical Illustration
- Algebraic Formula for a Level Curve
- Formula for the Slope of a Level Curve

Indifference Curves and the Marginal Rate of Substitution

- Deriving a Consumer's Indifference Curves from Their Utility Function
- General Properties of Indifference Curves:
  - One Through Every Commodity Bundle
  - Downward Sloping and Can't Cross
- Marginal Rate of Substitution (MRS)
  - Graphical Interpretation: Slope of the Indifference Curve
  - Algebraic Formula: Ratio of Marginal Utilities
  - Hypothesis of Diminishing Marginal Rate of Substitution

III. MATHEMATICAL REVIEW

Solving Optimization Problems (Math Handout, Section E)

- General Structure of Optimization Problems
- First and Second Order Conditions for Unconstrained Optimization Problems
- First Order Conditions for Constrained Optimization Problems

IV. UTILITY MAXIMIZATION AND DEMAND FUNCTIONS

Utility Maximization Subject to a Budget Constraint

- Graphical Illustration
- First Order Conditions for Utility Maximization
  - Two Interpretations of the First Order Conditions
- Second Order Conditions (Hypothesis of Diminishing MRS)
- Corner Solutions: Graphical Illustration and Algebraic Condition
- Indirect Utility Functions and Their Properties

Scale Properties of Functions (Math Handout, Section D)

Regular ("Marshallian") Demand Curves and Demand Functions

- Definition of Regular Demand Functions
  - Examples: Cobb-Douglas, Leontief, Linear
- General Properties of Demand Functions:
  - Walras' Law
  - Scale Invariant in Prices and Income
  - Relationship between Price Elasticities & Income Elasticity for a Good
- Market Demand Functions

V. MATHEMATICAL REVIEW #3

Comparative Statics of Solution Functions (Math Handout, Section F)

Comparative Statics of Optimal Value Functions (Math Handout, Section H)

VI. COMPARATIVE STATICS OF DEMAND

Income Changes

- Income-Consumption Locus
- Engel Curves: Definition and Graphical Derivation
- Income Elasticity
  - Superior, Normal and Inferior Goods
  - Income Elasticity and Budget Shares
  - Relationship Between Income Elasticities of All Goods
- Algebraic Derivation of the Effect of an Income Change

Price Changes

- Price-Consumption Locus
- Graphical Derivation of Marshallian Demand Curves
- Own Price Elasticity
  - Price Elasticity and Expenditures
- Cross Price Elasticity
  - Gross Substitutes and Gross Complements
- Algebraic Derivation of the Effect of a Price Change

Elasticity (Math Handout, Section B)

- Absolute, Proportionate and Percentage Changes in Variables
- Definition of Elasticity and Examples
- Constant Elasticity Functions

Compensated Price Changes and Compensated Demand Functions

- Graphical Illustration of a Compensated Price Change
- Graphical Derivation of Compensated Demand Curves
- Algebraic Derivation of Compensated Demand Functions
- Algebraic Derivation of the Effect of a Compensated Price Change

Slutsky Equation

Expressing Each of the Three Basic Changes in Terms of the Other Two
Graphical Illustration
Algebraic Formulation and Informal Proof
Giffen Goods

VII. SUPPLY OF FACTORS OF PRODUCTION

Supply of Labor: The Labor-Leisure Decision

Income-Leisure Space and the Labor-Leisure Decision
First Order Conditions for Optimal Supply of Labor
Comparative Statics: Income and Substitution Effects
Backward Bending Supply of Labor Curves
Kinked Budget Lines and the Overtime Decision

Supply of Capital: The Consumption-Savings Decision

Intertemporal Income and Consumption Streams
Interest Rates and Discounted Present Value of a Stream
Intertemporal Utility Maximization
First Order Conditions and Interpretation
Comparative Statics: Income and Substitution Effects

VIII.. DECISION MAKING UNDER RISK AND UNCERTAINTY

Expected value
Expected utility
Risk aversion
Demand for Insurance
Investment in a Risky Asset
Measures of Risk Aversion