

**Intermediate Microeconomic Theory  
Economics 3030**

*And we live/ A life of ease/ Every one of us/ Has all he needs.*

As you should know by now, the theme of microeconomics is precisely the opposite of the passage from the Beatles song above. Resources are scarce, and individual well-being, or welfare, depends on the manner in which they are allocated. Whether agents share objectives or are in conflict, economists model them as strategically seeking their interests. From previous coursework, you should be familiar with the concepts of preferences, maximization, technology, markets, and strategic interaction. This course continues the study of consumers and firms in markets using the tools of constrained optimization and game theory.

**Prerequisites:** Economics 1110–1120 and Math 1110 or the equivalents

**Textbook**

The course text is *Microeconomics: An Intuitive Approach with Calculus*, first or second edition, by Thomas Nechyba. There are copies on reserve, and online access is not required.

**Office Hours**

My office hours will be held in Uris 484 on Wednesday from 10:45 to 11:45 am and 1:30 to 2:30 pm, and by appointment if you cannot make those times. If you would like to set up an appointment, please send me an email at [gb293@cornell.edu](mailto:gb293@cornell.edu) listing three or four times you are available over the following several days so that I can choose one. If you think that at some point in the future you would like me to write a letter of recommendation for you for jobs, graduate school, or the like, please do stop by office hours so that my recommendation can be both more substantive and personal. The class will have a TA whose office hours and contact information will be posted.

Note to students with disabilities: If you have a disability-related need for reasonable academic adjustments in this course, provide me with an accommodation letter from Student Disability Services. Students are expected to give two weeks' notice of the need for accommodations. If you need immediate accommodation, please arrange to meet with me before the beginning of class or at least within the first two class meetings.

## Academic Integrity

This course follows both Cornell's Code of Academic Integrity ([cuinfo.cornell.edu/Academic/AIC.html](http://cuinfo.cornell.edu/Academic/AIC.html)) and Cornell's Code of Campus Conduct ([www.dfa.cornell.edu/treasurer/policyoffice/policies/volumes/governance/campuscode.cfm](http://www.dfa.cornell.edu/treasurer/policyoffice/policies/volumes/governance/campuscode.cfm)). Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. Any work submitted by a student in this course for academic credit will be the student's own work. Violations will be taken seriously. Students tend to be most tempted to violate these codes when they are concerned about their course grades. If you are concerned to that degree, please talk to me or an academic advisor.

Please note that videotaping, photographing, audiotaping, or otherwise making any picture or sound recording of an instructor is not permitted without the instructor's written consent. Failure to comply with this rule is a violation of Cornell's Campus Code of Conduct. Moreover, students are not authorized to replicate, reproduce, copy or transmit such materials, or "derivative" materials, including class notes, for sale or general distribution to others without the written consent of the faculty, academic staff member, or class participant who is the original source of such materials; and that Violations of the above constitute academic misconduct as described in the Code of Academic Integrity.

## Grading

Grading is based on problem sets, two preliminary examinations, and a final examination. There will be seven graded problem sets. You may work together, but all students must turn in their own work on the assignments. Problem sets will be due in the TA's box at a time to be announced and are not accepted by email. This policy will be strictly enforced. Grading is on a check-plus (10), check (9), check-minus (7), zero (0) basis. The problem sets will include problems identified as not being graded that are nonetheless covered on the examinations. I understand that other commitments, illness, or personal issues may interfere with completion of an assignment. Thus, your lowest problem set grade will be dropped.

The first preliminary examination will be given in class on September 29<sup>th</sup>. The second preliminary examination will be given in class on November 3<sup>rd</sup>, with a strong emphasis on material since the first preliminary examination. If you have an excused absence, you must let me know in advance that you will not be taking the examination, and documentation should be provided if available. Additional weight will be put on the other preliminary examinations and on the final in cases of excused absence. *Please note that students are expected to remain in the examination room during all examinations.* If you have a medical or other reason why you are not able to do so, please let me know as soon as possible.

The final examination will be between December 7<sup>th</sup> and December 15<sup>th</sup>, with the date to be determined in mid-September (<http://registrar.sas.cornell.edu/Sched/exams.html>). *If you know you will be unable to take the final examination during any of those days, you should inform me during your first week of class.* The final examination will cover the entire course, with greatest weight on material since the second preliminary examination.

The material covered on the examinations will be drawn from lecture, section, the problem sets, and any handouts that may be distributed. Students who attend lecture, read the text, complete the problem sets on time (and figure out what they have done incorrectly afterwards) almost invariably succeed in the class. No one thing we will do is particularly difficult, but we cover a lot of material in a way that builds on itself.

While the examinations are written with the expectation that at least a few students will answer all of the questions perfectly, typically many students receive raw scores that are low. This should not necessarily be an issue of concern. The raw scores are converted to numeric grades, and it is those converted scores that will be entered on Blackboard and used to determine the course grade. Course grades follow a 100 point scale of *A* 93-100, *A-* 90-93, *B+* 87-90, *B* 83-87, *B-* 80-83, etc. The grade of *A+* is awarded for exceptional performance.

Category	Percentage of Grade
Problem Sets	8%
First Preliminary Examination	25%
Second Preliminary Examination	25%
Final Examination	42%

## Course Outline

The assigned chapter readings are intended to accompany lecture material. The chapters are the same for both editions of the textbook. Also note that the outline may be altered as the semester progresses. If so, any alterations will be posted on the course website.

### I. Introduction

Lecture 1 (8/23) Syllabus, Concepts, Consumer Problem  
Reading: Chapter 1

### II. Consumers

Lecture 2 (8/25) Budgets; Properties of Preferences: Completeness, Transitivity, and Rationality  
Reading: Chapter 2, 4A.1, and 4.B.1

Section 1 (8/29)

Lecture 3 (8/30) Further Properties of Preferences: Monotonicity, (Continuity), Convexity, Utility Functions, Indifference Curves, Marginal Utility; Partial Derivatives  
Reading: Chapter 4A.2, 4B.2, 4A.3, 4B.3.1, and Appendix to Ch. 4

Lecture 4 (9/1) Utility Functions: Marginal Utility, Marginal Rate of Substitution, Complements, Substitutes, CES, Homotheticity, Quasilinearity, and Essential Goods  
Reading: Chapter 4B.3.2, 4B.3.3, 5A, 5B

Section 2 (9/5) Since this is Labor Day, there will be no section. Informal section will be held on Tuesday or Wednesday.

Lecture 5 (9/6) The Consumer's Problem: Marshallian Demands, Indirect Utility Function, and the Expenditure Function  
Reading: Chapter 6A, 6B

Problem Set 1 (9/7)

Lecture 6 (9/8) Income Effects: Normal Goods, Inferior Goods, Luxuries and Necessities  
Reading: Chapter 7A.1, 7B.1

Section 3 (9/12)

Lecture 7 (9/13) Substitution Effects, Cost Minimization, and Hicksian Demands  
Reading: Chapter 7A.2, 7A.3, 7B.2, 7B.3

Problem Set 2 (9/14)

Lecture 8 (9/15) Price Effects, Duality, and the Slutsky Equation  
Reading: Chapter 9A.1, 9B.1, 10A.1, 10.A.2, 10B.1

Section 4 (9/19)

Lecture 9 (9/20) Welfare and Commodity Taxation  
Reading: Chapter 10A.3, 10.A.4, 10.B.2

Problem Set 3 (9/21)

Lecture 10 (9/22) General Equilibrium: Exchange Economy, Contract Curve, Core, Competitive Equilibrium  
Reading: Chapter 16A.1, 16B.1

Section 5 (9/26)

Lecture 11 (9/27) General Equilibrium: Walras' Law, Fundamental Welfare Theorems, Core Convergence  
Reading: Chapter 16A.2, 16.B.2, Appendix to Ch. 16

Lecture 12 (9/29) First Preliminary Examination

### **III. Firms**

Lecture 13 (10/4) One Input: Technology, Production Frontiers, Marginal Product, Profits, Profit Maximization, and Cost Minimization

Reading: Chapter 11A.1, 11B.1, 11A.2, 11B.2, 11A.3, 11B.3, 11.B.4, 11.A.5, 11B.5

Lecture 14 (10/6) Multiple Inputs: Technology, Returns to Scale, Profit Maximization

Reading: Chapter 12A.1, 12A.2, 12B.1, 12B.2

Lecture 15 (10/13) Multiple Inputs: Cost Minimization and Duality

Reading: Chapter 12A.3, 12A.4, 12B.3, 12B.4,

Section 6 (10/17)

Lecture 16 (10/18) Short Run vs. Long Run

Reading: 13A.1, 13A.2, 13A.4, 13B

Problem Set 4 (10/19)

### **IV. Consumers and Firms Combined**

Lecture 17 (10/20) Long-Run and Short-Run Equilibria, Equilibrium Welfare

Reading: Chapter 14

Section 7 (10/24)

Lecture 18 (10/25) Long-Run and Short-Run Equilibria, Equilibrium Welfare

Reading: Chapter 15, 18A.1, and 18B.1

Note that you will not be required to integrate on the examinations.

Problem Set 5 (10/26)

Lecture 19 (10/27) Taxes, Subsidies, Monopoly, and the General Theory of the Second Best

Reading: Chapter 19.A.1, 19.A.2.1, 19.B.1, 19.B.2, 23A.1, 23B.1

Section 8 (10/31)

Lecture 20 (11/1) Externalities, Pigouvian Taxation, and the Coase Theorem

Reading: Chapter 21A, 21B.1.1, 21B.1.2

Lecture 21 (11/3) Second Preliminary Examination

## **V. Decision-Making under Uncertainty**

Lecture 22 (11/8) Risk I: Insurance, States, Expected Value, Expected Utility, Certainty Equivalent, Risk Premium

Reading: Chapter 17A.1, 17B.1, 17A.2

Lecture 23 (11/10) Risk II: Optimal Insurance, Aggregate Risk

Reading: Chapter 17B.2, 17A.3, 17B.3.1, 17B.3.2, 17B.3.4

Section 9 (11/14)

## **VI. Strategic Interaction**

Lecture 24 (11/15) Game Theory Introduction: Best Response Functions, Pure-Strategy Equilibria, Dominant and Dominated Strategies, Nash Equilibrium

Reading: Chapter 24A.1-24.A.1.3, 24A.2.1-24.A.2.3

Problem Set 6 (11/16)

Lecture 25 (11/17) Mixed Strategies, Mixed Strategy Equilibria, and Equilibrium Existence

Reading: Chapter 24.A.4

Section 10 (11/21)

Lecture 26 (11/22) Oligopoly

Reading: Chapter 25A.1.1, 25A.1.2, 25A.1.4, 25B.1, 25A.2.1, 25A.2.2, 25B.2.1, 25B.2.2

Problem Set 7 will be distributed but not collected.

Section 11 (11/28)

Lecture 27 (11/29): Public Goods

Reading: Chapter 27A.1, 27A.2, 27B.1, 27B.2

## **VII. Conclusion and Review**

Lecture 28 (12/1): Conclusion and Review

Reading: Chapter 29, 30

Final Examination TBD December 7-15.