

**EC 8120**  
**Optimization and Partial Equilibrium Analysis**  
**Spring 2008**  
**T/H 11:00 am – 12:15 pm**

Professor Ragan Petrie  
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OH: Th, 3:00-4:15 pm (or by appt.)

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OH: M, 4:30-5:30pm; W, 10:00-11:00am

**Prerequisites:** EC 8100. Note that this course is designed for first-year PhD students in economics. Those who are not PhD students in the Department of Economics, or for whom this course is not a requirement for another department, should consult the instructor before continuing in this course.

**Course Objectives:** We will cover the basic topics of neoclassical economics, that is, consumer and producer theory and uncertainty. If time permits, at the end of the semester, we will also cover information economics.

**Texts:** There are two required texts for this course. (1) Jehle and Reny, *Advanced Microeconomic Theory, Second Edition*, Addison-Wesley, 2001, (2) Varian, *Microeconomic Analysis, Third Edition*, Norton, 1992. Another good text (not required): Mas-Colell, Whinston and Green, *Microeconomic Theory*, Oxford University Press, 1995.

Both of the required texts have relative strengths, so I will draw my lectures from both to varying degrees. Note that all texts (including Mas-Colell) are consistent with each other, but each presents the material in varying degrees of generality, offers alternative definitions of concepts, and emphasizes different topics. Since our time is limited, we will not be able to treat all topics in depth. Those students who will be studying for the microeconomics theory exam are advised to read all the texts and solve the problems in all of them as proper preparation for the exam.

**Problem Sets:** There will be problem set assignments posted weekly. These will be posted on uLearn and will not be graded. You are encouraged to work through all the problems as proper preparation for exams.

**Work Session:** Sarah will hold a weekly work session on Tuesday mornings (9:30-10:45am), room TBA. Work sessions are to review problems (e.g. from problem sets and quizzes) and to answer any questions you may have. Attending the work session is voluntary.

**Quizzes:** There will be periodic announced quizzes, given at the beginning of class, throughout the semester. These will be based on course material and the problem sets.

**Grading:** Your course grade is determined by your performance on the quizzes (20%), a midterm exam (35%) and the comprehensive final exam (45%). Note that the midterm exam will be in class. There are no make-up exams. If you miss the midterm, the weight of that exam gets placed on the final. If you miss the final exam, you get a zero for the final. You cannot “drop” an exam after taking

it and doing poorly. Also, you cannot come to an exam, look at the exam, and then decide not to take it. If you do, you will get a zero for the exam.

**Exam Schedule:** The midterm exam is Thursday, February 21<sup>st</sup> in class. The final exam is scheduled for Thursday, May 1<sup>st</sup>, 10:15am-12:15pm.

**uLearn:** I will post announcements, problem sets, etc on uLearn. Students are expected to check regularly.

**Academic Honesty:** All students are expected to know the university's policy on Academic Honesty (<http://www2.gsu.edu/~wwwfhb/sec409.html>).

## Course Outline

This is an outline. Deviations may be necessary during the semester. Any changes will be announced in class.

### Math Review (do on your own)

Homogeneous, concave and quasiconcave functions

Jehle and Reny, A1  
Varian, chpt 26

Optimization and comparative statics

Jehle and Reny, A2  
Varian, chpt 27

### Preferences and Utility

Jehle and Reny, chpt 1.1-1.3  
Varian, chpt 7

### Indirect Utility and Expenditure Function

Jehle and Reny, chpt 1.4  
Varian, chpt 7

### Properties of Demand, Slutsky Equation

Jehle and Reny, chpt 1.5  
Varian, chpt 8, 9

### Duality, Integrability, Welfare, Revealed Preference

Jehle and Reny, chpt 2.1-2.3, 4.3  
Varian, chpt 6, 8, 9, 10

### Uncertainty

Jehle and Reny, chpt 2.4  
Varian, chpt 11

### Theory of the Firm: Production, Cost, Duality

Jehle and Reny, chpt 3.1-3.5  
Varian, chpt 1-5

### Theory of the Firm: Competition and Equilibrium

Jehle and Reny, chpt 4.1-4.3  
Varian, chpt 5, 13-14

## Student Learning Outcomes for Econ 8120 Partial Equilibrium Analysis

The purpose of this course is to expose graduate students to core concepts in modern microeconomic theory: core elements of economic methodology as well as specific results derived from established theory. The subject matter focuses on single agent models and single market models.

Upon completing the course, students will be able to

1. Explain the role of optimization in economic method.
2. Use the implicit function theorem to perform comparative statics analysis on structural economic models of consumers, firms, individual markets in isolation and systems of related markets.
3. Use the utility function model to derive consumer demand functions and prove and interpret their technical properties; to derive indirect utility functions and prove and interpret their technical properties; and to derive consumer expenditure functions and prove and interpret their technical properties.
4. Use cost minimization to derive conditional input demand functions and prove and interpret their technical properties and to derive cost functions and prove and interpret their technical properties.
5. Use profit maximization to derive unconditional input demand functions for competitive and non-competitive firms and prove and interpret their technical properties and to derive indirect profit functions for competitive and non-competitive firms, and prove and interpret their technical properties.
6. Use the expected utility model to derive and interpret properties of agent behavior under conditions of risk.
7. Use the known technical properties of optimum value functions to derive and interpret answers to select applied economic questions dealing with market structure, regulation, or taxation.