

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN  
Department of Finance – Department of Economics

**Finance 580 / Economics 500: General Microeconomic Theory**  
**Section 2: “Everybody Else”**

**PRELIMINARY SYLLABUS**

**Faculty Information:**

Faculty: Professor Nolan Miller  
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Teaching Assistant: TBA

Location: The course meets Mondays and Wednesdays from 11:00 – 12:50 in Wohlers Hall 138. Although the course is officially listed as meeting from 11:00 – 12:50, most days we will actually meet from 11:00 – 12:20 in accordance with the College of Business schedule. There will also be optional review sessions led by the teaching assistant on Tuesdays from 5:30pm – 7:20pm in David Kinley Hall, 223.

Web site: Relevant course materials will be posted on the Compass web site for this course.

**Course Objectives:** ECON 500 / FIN 580 is the first semester of a Ph.D.-level course in microeconomic theory. Intended primarily for students who anticipate doing original research employing the tools of microeconomic theory, this doctoral-level course is designed for the dual purposes of giving students a systematic grounding in microeconomics and preparing them to use economic models in their own research. It addresses the broad methodological topics of consumption theory, production theory, competitive equilibrium, monopoly, market failure and game theory.

The course is jointly listed as ECON 500 and FIN 580 (section 2 in both cases). The requirements and grading of the course will be the same regardless of the section for which a student registers.

**Audience:** This course is suitable for doctoral students in any field who are interested in the tools of doctoral-level microeconomics. Advanced undergraduates with strong background in economics and mathematics are welcome to take the course with permission of the instructor (see prerequisites below). However, it is primarily intended for students who will be reading or producing research with microeconomic content. While the topics in this course are mathematical, the emphasis is on economic content and research methodology rather than proofs and technical details. Nevertheless, mathematical arguments are employed to help explain the intuition of the theories studied.

**Prerequisites:** Prior to enrolling in this course, students should possess competence in the following areas:

- 1) Multivariate Calculus (typically two years of college calculus).
- 2) Probability theory (typically one year of advanced, calculus-based, undergraduate probability).
- 3) Intermediate microeconomic theory.

**Readings:** The main text for the course is Andreu Mas-Colell, Michael D. Whinston and Jerry R. Green, *Microeconomic Theory* (Oxford University Press, 1995), also known as MWG. Typically, students attempting to learn this material find it helpful to consult more than one textbook. Two others that I find helpful are Silberberg and Suen, *The Structure of Economics: A Mathematical Analysis*, and Jehle and Reny,

*Advanced Microeconomic Theory*. These texts are at a slightly lower level than MWG, but students have found them useful in the past. Other alternative texts include David Kreps, *A Course in Microeconomic Theory* (Princeton University Press, 1990), and Hal Varian *Microeconomic Analysis*.

Students looking for a math reference should consider Simon and Blume, *Mathematics for Economists* or Chiang, *Fundamental Methods of Mathematical Economics*.

An additional text on game theory that many students find useful is *Game Theory for Applied Economists*, by Robert Gibbons.

I have prepared an extensive set of notes intended to accompany the lectures and the text (MWG). The notes for the first half of the course are available from my web site: <http://www.business.illinois.edu/nmiller/notes>

**Course Web Site:** This course will make extensive use of the Compass web platform. Compass is available at <http://compass.illinois.edu>. Lecture slides, problem sets and solutions, and supplemental readings and handouts will be posted on the course web site. Course announcements will also be posted there. Please check the course web site regularly. In order to keep your costs down, I will try, as much as possible, to limit the amount of paper the course generates by posting materials online and using materials that are available for free through the university's online resources.

**List of Topics:** The tentative list of topics for Fall 2011 is:

1. Static Consumer Theory (7 sessions)
2. Production Theory (2 sessions)
3. Equilibrium, Welfare Analysis, Market Failure (4 sessions)
4. Review and Midterm (2 sessions)
5. Monopoly and Pricing (2 lectures)
6. Choice Under Uncertainty (4 sessions)
7. Game Theory (7 sessions)
8. Review for Final Exam (1 session)

**Problem Sets:** Problem sets will be assigned each week (approximately), to be completed by 4pm on the due date (typically TBA). Assignments should be turned in during class or put in TBA.

The problems on these assignments will sometimes be more difficult than the examples we have done in class, and will also sometimes be more difficult than the types of questions you will likely see on the exam. This is done intentionally to challenge you to think about the course material at a deeper level.

You are *strongly* encouraged to work on the assignments with a small group of classmates. Past experience suggests that groups of 3 – 4 people tend to work best. However, you must write up your answers independently and turn in separate work. **Photocopies or multiple printouts of essentially the same computer file do not qualify as “separate work.”** While numerical results may look identical for individuals in the same study group, each person must write his answer and accompanying explanations separately. That is, you should *provide your answers in your own words*. If presentation and written explanations are too similar; they will receive no credit. Please include the names of the members of your study group on your assignment when you hand it in.

**IMPORTANT NOTE:** Assignments are due EITHER a) in class at the beginning of class, OR b) in the designated drop box by 5pm on the due date. The exact location will be announced in class. ***No late assignments will be accepted!***

The goal of the problem sets is to help you learn. Problem sets will be graded on a 10 point scale. Students who turn in the assignment on time and make an honest effort at all of the questions should receive most of the credit.

In computing the contribution of the assignments/problem sets to your final grade, **I will drop the lowest of your assignment grades.** Thus, if there are seven assignments, your overall problem set grade will be based on your six best assignments. Because of this, students who fail to turn in an assignment on time should consider that to be their dropped assignment. Although a student may choose not to complete an assignment, it is strongly recommended that you complete all of the assignments.

**Review Sessions:** The Teaching Assistant will be conducting weekly review sessions, which will go over difficult material from the lectures and readings. The review session will be held from 5:30pm – 7:20pm in DKH 223.

**Exams:** The course will have one midterm exam and one final exam. The midterm exam will be held on October 12, 2011 during the regular class time. The final exam will be at a date and time to be scheduled by the university. **THE FINAL EXAM FOR THIS COURSE IS CUMULATIVE AND COVERS MATERIAL FROM THE ENTIRE SEMESTER.**

**Requirements and Evaluation:** Evaluation will be based on problem sets, a midterm exam, and a final exam.

Problem Sets:	25%
Midterm Exam:	30%
Final Exam:	45%

The plus/minus system will be used when assigning final course grades. Grades will be posted on Compass. Undergraduates will be evaluated on the same standard as graduate students.

**Academic Integrity:** From the University statement on your obligation to maintain academic integrity: “If you engage in an act of academic dishonesty, you become liable to severe disciplinary action. Such acts include cheating; falsification or invention of any information or citation in an academic endeavor; helping or attempting to help others commit academic infractions; plagiarism; offering bribes, favors, or threats; academic interference; computer-related infractions; and failure to comply with research regulations.”

Part 4 of the Student Code gives complete details of rules governing academic integrity for all students. You are responsible for knowing and abiding by these rules. Infractions will be dealt with according to published procedures.

**Disabilities:** To ensure that disability-related concerns are properly addressed from the beginning, students with disabilities who require reasonable accommodations to participate in this class are asked to see me as soon as possible.

**Office hours:** Office hours are listed above; if any changes become necessary, they will be posted on the course web site. Office hours are for your benefit, so feel free to use them! No appointment is necessary during office hours. If you cannot come to these office hours, please make an appointment for another time by sending me an email.

**BIF Emergency Procedures:** **The College of Business has asked that this be included in the syllabus for all courses in BIF. It may or may not be applicable to this course.** Because BIF is not a designated tornado shelter, in the event of a tornado warning please seek shelter in the Wohlers Hall basement or the Armory (the nearest designated University tornado shelters). If a tornado is imminent, the BIF basement stairwells can be used on an emergency basis. In the event of a fire in BIF, exit BIF and proceed to 141 Wohlers Hall. In the event of threat from a shooter on campus, lock down the classroom and move to a place of safety within the classroom. If you encounter a suspicious package, do not touch the package, alert campus security, and refrain from cell phone usage until the situation is resolved. More detailed information and action instructions are available in the BIF Building Emergency Action Plan.

## Outline for the course

### I. Consumer Theory

**Session 1:** Introduction and review of syllabus. Budget Sets.

*Readings:* MWG Ch. 2A – 2D. Miller Notes Ch. 1 – 2.4.

**Session 2:** Preferences, Utility, Ordinal vs. Cardinal

*Readings:* MWG 3A – 3C            Notes: 3.1 – 3.2.

**Session 3:** Utility Maximization

*Readings:* MWG 2E, 3D            Notes: 2.5 – 2.7; 3.3

**Session 4:** Indirect Utility Function, Envelope Theorem, Roy’s Identity, Expenditure Minimization

*Readings:* MWG 3E, 3G            Notes: 3.3, 3.4

**Session 5:** Duality, Welfare Evaluation

*Readings:* MWG 3I                Notes: 3.4

**Session 6:** Welfare Evaluation, “Intermediate Micro,” Endowment Choice

*Readings:* MWG 3I                Notes: 4.1, 4.3 – 4.5.

**Session 7:** Consumption over time, Exponential and Quasi-Hyperbolic Models

*Readings:* Notes 4.6, handout on Quasi-hyperbolic model.

### II. Production

**Session 8:** Profit maximization, Production with one output.

*Readings:*        MWG 5 A-D                Notes 5.0- 5.2

**Session 9:** Cost Minimization Geometry of Cost and Supply, Agricultural Household Model

*Readings:*        MWG 5 C – D, G.            Notes 5.3 – 5.9

### III. Equilibrium and Welfare Analysis

**Session 10:** Competitive Equilibrium, Robinson Crusoe Model.

*Readings:*        MWG 10 A-B; 15C            Notes 7 – 7.1

**Session 11:** Partial Equilibrium, Long-run Equilibrium

*Readings:* MWG 10F Notes 7.4

**Session 12:** Welfare Theorems

*Readings:* MWG 10D Notes 7.3

**Session 13:** Comparative Statics of Equilibrium, Taxation

*Readings:* MWG Example 10.C.1 (p. 323 – 324) Notes 7.2.4; Handout.

**Session 14:** Market Failures: Externalities

*Readings:* MWG 11 A-B Notes 8.1 – 8.1

**IV. Midterm**

**Session 15: Midterm Exam (October 12, 2011).**

**V. Monopoly and Pricing**

**Session 16:** Monopoly and Pricing I.

*Readings:* MWG 12A – 12B. Notes 9.1 – 9.4.

**Session 17:** Monopoly and Pricing II: Price Discrimination.

*Readings:* Continue from Session 16

**VI. Choice Under Uncertainty**

**Session 18:** Choice Under Uncertainty: Lotteries and Expected Utility

*Readings:* MWG 6A-B. Notes 6.0 – 6.1 Silberberg 13

**Session 19:** Utility for Money and Risk Aversion

*Readings:* MWG 6C-D. Notes 6.2. Silberberg 13

**Session 20:** Insurance, Portfolio Choice

*Readings:* Notes 6.3 – 6.4 Silberberg 13

**Session 21:** Applications: Prospect Theory, State-Preference Models.

*Readings:* TBA

**VII. Game Theory**

**Session 22:** Introduction to Game Theory, Examples.

*Readings:* MWG 7

**Session 23:** Game Trees, Extensive Forms

*Readings:* MWG 7

**Session 24:** Analysis of Games in Strategic (Normal) Form: Dominance and Nash Equilibrium; Trembling Hand Perfection

*Readings:* MWG 8A – 8B, 8D, 8F

**Session 25:** Static Games of Incomplete Information: Bayes-Nash Equilibrium

*Readings:* MWG 8E

**Session 26:** Analysis of Games in Extensive Form: Backward Induction

*Readings:* MWG 9A,B

**Session 27:** Analysis of Games in Extensive Form: Subgame Perfection and (weak) Perfect Bayesian Equilibrium.

*Readings:* MWG 9B,C

**Session 28:** Perfect Bayesian Equilibrium.

*Readings:* MWG 9C

**Session 29:** PBE in Signaling Games, Forward Induction, Intuitive Criterion.

*Readings:* MWG 9D