

# Advanced Managerial Economics (MECO 6345) Microeconomic Theory I (ECON 6301) Course Syllabus

Fall 2016

## Logistics

**Professor** Kyle Hyndman

**Class Time:** Thursdays 10:00 – 12:45

**Phone:** (972) 883-5872

**Class Location:** JSOM 2.904

**Office:** JSOM 3.614

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**Office Hours:** To be determined by class vote.

**Website:** <https://elearning.utdallas.edu>

## Course Description

This is an advanced microeconomic theory course that is primarily intended for Ph.D. students. It aims to provide a rigorous treatment of theories on consumers, firms, and the market. Economic problems are studied using analytic techniques such as the analysis of optimization and equilibrium. Formal proofs will be used throughout. It will help students develop skills necessary to successfully complete advanced economic analysis and undertake future research in economics, finance, marketing, and accounting.

## Student Learning Objectives

There are three objectives for this course:

1. Students will be able to use formal mathematical logic and the tools of constrained optimization and comparative static analysis to analyze the theory of consumer such as preference and choice, consumer demand and choice under uncertainty.
2. Students will be able to apply the cost-minimization and profit maximization frameworks to analyze firms' production decisions.
3. Through the use of optimization and game theoretical analysis, students will understand the determinants of market equilibrium under different market structures such as competitive market, monopolistic market, and oligopoly.

## Required Textbooks and Materials

The required textbook for the course is *Microeconomic Theory*, Oxford University Press, 1995, by Mas-Colell, Whinston, and Green.

A useful book which covers largely the same material and may be used as a supplemental text is *Microeconomic Foundations I: Choice and Competitive Markets*, Princeton University Press, 2013 by David M. Kreps.

Finally, two other reference books for the class are:

- *Microeconomic Analysis*, 3rd Edition, W. W. Norton & Company, 1992, by Hal Varian.
- *Lecture Notes in Microeconomic Theory: The Economic Agent*, 2nd Edition, Princeton University Press, 2012, by Ariel Rubinstein<sup>1</sup>

## Outline of Course

Week	Date	Topic	Book	Assignment Due
1	Aug 25	<b>Welcome</b> <b>Decision Theory (Certainty):</b> Preference relations & utility representations	MWG 1AB	–
2	Sep 1	<b>Decision Theory (Certainty):</b> Choice Rules, WARP, Classical demand	MWG 1CD MWG 3A-C	Ass. #1
3	Sep 8	<b>Decision Theory (Certainty):</b> Main utility representation theorem <b>Consumer Choice:</b> Walrasian demand	MWG 3C MWG 2A-E	Ass. #2
4	Sep 15	<b>Consumer Choice:</b> Properties of Walrasian demand, Utility maximization	MWG 2F MWG 3D	Ass. #3
5	Sep 22	<b>Consumer Choice:</b> Utility maximization, Expenditure minimization, duality	MWG 3EGI	Ass. #4
6	Sep 29	<b>Buffer Week</b> <sup>†</sup> <b>Midterm Review</b>	–	Ass. #5
7	Oct 6	<b>Midterm Exam</b>	–	–
8	Oct 13	<b>Choice Under Uncertainty:</b> Lotteries, Independence, Expected Utility	MWG 6AB	–
9	Oct 20	<b>Choice Under Uncertainty:</b> Expected Utility Theorem, Risk aversion, Stochastic dominance, Critiques	MWG 6CD	Ass. #6
10	Oct 27	<b>Choice Under Uncertainty:</b> Risk aversion, Stochastic dominance, Critiques	MWG 6D	Ass. #7
11	Nov 3	<b>Market Power:</b> Monopoly, Oligopoly (Cournot, Bertrand), Game Theory	MWG 8ABD MWG 12A-C	Ass. # 8
12	Nov 10	<b>Market Power:</b> Oligopoly (Capacity constraints, Product differentiation) <b>Production:</b> Production sets, Transformation Functions, Profit maximization, Cost minimization	MWG 12C MWG 5A-F	Ass. #9
13	Nov 17	<b>Buffer Week</b> <sup>†</sup> <b>Final Review</b>	–	Ass. #10
14	Nov 24	<b>Thanksgiving: No Class</b>	–	–
15	Dec 1	<b>Final Exam</b>	–	–

<sup>†</sup> The buffer weeks are meant to give time to cover material that we were unable to finish in previous weeks.

<sup>1</sup>Can be freely downloaded from his website.

## Coursework, Exams and Grading

Your grade in the course will be based on assignments, a midterm exam and a final exam according to the following scale:

- Weekly Problem Sets: 20%
- Midterm Exam: 40% (October 8, 2015)
- Final Exam: 40% (December 3, 2015)

Both the midterm and final exams will be held in class and will be closed book and closed notes exams. The final exam will only cover material from after the midterm exam.

There will be 10 assignments (approximately weekly, except for exam weeks) that will be due at the beginning of class, as listed in the table above. Each assignment will consist of a small number of required questions, as well as a number of recommended problems. The recommended problems will typically be from the textbook. While it is strongly recommended that all students do both the required and recommended problems, only the required problems will be graded. Each assignment will be graded out of a maximum possible 10 points, and there will be four possible grades, at my sole discretion: 10 (excellent: only very minor mistakes, if any), 7 (good: mostly correct, but one or more substantive flaws), 4 (poor: partially incomplete or several substantive flaws), 0 (unacceptable: fail to hand in, or hand in but with very little discernible effort and many substantive flaws).

In addition, each of the **Ph.D. students** (working in groups of 2 or 3, depending on class size) will be required to prepare solutions to one set of the recommended questions, which will be distributed to your fellow classmates. The solutions must be **typed** (preferably in L<sup>A</sup>T<sub>E</sub>X)<sup>2</sup> and sent to me for distribution no later than Friday at 1:00PM of the week the assignment is due. Students responsible for preparing solutions to the recommended problems should plan to meet with me during office hours, or some other mutually agreeable time, to discuss the solutions and to make sure that they are correct and well-presented. This be counted as a regular assignment.

At the end of the semester, when computing your grade for the assignments, I will drop the lowest score. *Therefore, late assignments will not be accepted.* Any questions about your grade on an assignment or exam must be made within **one week** (assignment) or **two weeks** (exam) of the relevant course work being returned to students.

**Note 1:** *For some of the assignment questions (either required or recommended), there may be solutions circulating. It is decidedly not to your advantage to copy from these solutions. Not only will you receive a grade of 0 for doing so, but **more importantly** you will very likely not learn the material sufficiently well to succeed on the exams. Before being tempted to consult with solutions, please approach either myself or another classmate for help.*

**Note 2:** *Don't Cheat!!!! Cheating includes, among other things not listed, directly copying another person's work on an assignment or exam, and consulting outside materials during an exam. To a large extent, your actual grades are not that important, so there is limited benefit from cheating. Moreover, the academic profession relies on the honesty of its practitioners. If you cheat here, then it sets a bad precedent for your future behavior. Cheating tarnishes the academic profession and will not be tolerated if discovered.*

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<sup>2</sup>Mac users can obtain a L<sup>A</sup>T<sub>E</sub>X distribution from <http://tug.org/mactex/> and a free T<sub>E</sub>X editor – called TeXShop – from <http://pages.uoregon.edu/koch/texshop/>. Windows users can obtain a L<sup>A</sup>T<sub>E</sub>X distribution from <http://www.miktex.org>. A good, but not free, T<sub>E</sub>X editor for Windows can be found at <http://www.winedt.com>. You should also be able to find free T<sub>E</sub>X editors for Windows such as Texmaker or Texworks, but I am less familiar with these. I will post the T<sub>E</sub>X source file for assignments so that you can use this as a starting point and learning tool.

## Mathematical Content

This class is highly mathematical and students will be expected to read, understand and write their own formal proofs of economic and mathematical concepts. The Naveen Jindal School of Management is tentatively planning to offer a *Math Bootcamp* the week before classes begin that will introduce and refresh formal techniques of mathematical analysis that will be used in this and other classes in the Ph.D. program. This bootcamp will be co-taught by myself and Milind Dawande, who teaches the Optimization class (OPRE 7353).

If you are not a Ph.D. student in JSOM, then you should contact the Ph.D. advisor of your program of studies to see if you can participate in the bootcamp.

If you are not a Ph.D. student at all, then you should only consider taking this class if you plan to do a Ph.D. in the future and have sufficient mathematical background. Feel free to contact me if you are unsure.

## Other Policies, Rules and Guidelines

For a full list of UT Dallas policies on things such as student conduct, academic integrity, religious holidays, student grievance procedure, and disability services, among others, please go to: <http://go.utdallas.edu/syllabus-policies>.