Course Syllabus
ECON 7300– Economic Theory and Decisions
Fall Semester, 2020
3.0 Credit Hours

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Office Hours (TA): via Zoom, by appointment
Class: T 1:00 –4:00pm, via Zoom
Course URL: eCourseware (opens in new window)

Course Overview

This course introduces some of the basic models in Microeconomic Theory, focusing on models of individual behavior, and touching on the concept of equilibrium towards the end of the course. Models of individual behavior include preferences, choice, decision making under uncertainty, consumers, producers, and monopoly. Towards the end, we will explore the concepts of equilibrium of an economic model and Pareto stability using two different frameworks. The main goal of this course is to provide the basic tools to prepare you for the study of more complex models in ECON 8310 – Advanced Microeconomics I.

Pre-Requisites/Co-Requisites

The need for clear and precise presentation of concepts, models and results makes the use of mathematics necessary for this course, relying mostly on basic concepts in set theory and logic. Applications will employ tools from an undergraduate calculus sequence.

I will provide review notes on eCourseware (opens in new window) before the beginning of the course. You should study those notes and feel comfortable with them, and you will be able to ask questions during the first class.

It is strongly suggested that students have taken, or are concurrently enrolled in, ECON 6810 (Quantitative Economic Analysis). Please visit the graduate catalog (opens in new window) or Ph.D.
handbook (opens in new window) for more information. Having taken a course in Intermediate Microeconomics is preferred, but not required.

Required Text


The Osborne & Rubinstein (O&R) textbook will be the primary source of material for this course. A soft version can be downloaded for free from the following website:


If you prefer to read from a print textbook instead, you may purchase the print version, using ISBN 9781783748921.

Location of Course Materials

Aside from the textbook, all relevant materials will be posted on eCourseware (opens in new window).

Course Methodology

This course will use a combination of synchronous and asynchronous activities. Synchronous meetings will take place on Tuesdays at 1:00 pm via Zoom. I expect these meetings to end around 3:00 pm but am willing to stay for up to 4:00 pm if needed. You will receive an email with the Zoom calendar invitation on August 17, and I will make the meeting ID available on eCourseware (opens in new window).

Each week, you will be assigned readings from the textbook, practice problems and homework problems. Before we meet on Tuesdays, you should have read the assigned chapter sections of the textbook and solved the practice problems. You can see a detailed schedule of activities on the last page of this document, also available on eCourseware (opens in new window).

It is your responsibility to ask all questions you may have about the material during class time. After our Tuesday meeting, you will have the rest of the week to work on homework problems that must be turned in on Fridays.

I provide specific details about homework and exams in the “Grading and Evaluation Criteria” section.
Course Objectives

Microeconomic theory is not about crunching numbers and memorizing results, but about learning how to represent interesting problems using mathematical models and deriving logically sound conclusions from them.

Models are not meant to replicate reality. Instead, they are meant to capture the most relevant aspects of a question we are trying to answer, omitting irrelevant details. Paraphrasing two of my favorite quotes, “all models are wrong, but some of them are useful”, and “a model is a lie that makes you see the truth”. The first one is attributed to the statistician George Box, and the second one to the artist Pablo Picasso (I just replaced the word “art” with the word “models”).

By successfully completing this course, students will be able to:

1. Identify patterns in individual and aggregate behavior and their mathematical representation.
2. Understand the role of assumptions and definitions on results of a model.
3. Derive and communicate effectively the results of simple models in Microeconomic Theory.
4. Recognize and analyze applications of these models and their limitations.

Fogelman College: Learning Outcomes for Your Degree

This course is designed to help you to meet the overall learning objectives for the MA/PhD degree in Economics offered by the Fogelman College. You should take the time to become familiar with the overall learning objectives as a student of your respective program.

MA in Economics
The Fogelman College has established the following learning goals for all students successfully completing the MA in Economics degree:

- Graduates will acquire a strong base in theoretical economic analysis.
- Graduates will acquire discipline specific knowledge.
- Graduates will acquire high-level empirical skills.
- Graduates will be able to communicate economic concepts effectively.

PhD in Economics
The Fogelman College has established the following learning goals for all students successfully completing the PhD degree:

- Graduates will demonstrate a detailed knowledge of their areas of specialization.
- Graduates will master the analytical/methodological skills needed to evaluate and conduct research in their areas of specialization.
- Graduates will demonstrate their ability to design and conduct original research in their chosen fields of specialization.
- Graduates will be able to teach college-level courses in their areas of specialization.
• Graduates will be able to communicate the results of their research in a clear and effective manner.

Grading and Evaluation Criteria

This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades for this course will be computed.

Summary of Graded Activities

Your final course grade will depend on two main categories: exams and homework assignments. You will be required to take a Midterm Exam and a Final Exam, and submit one homework assignment each week. The weight assigned to each category is presented in the table below.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Date</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm Exam</td>
<td>October 20</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>November 24</td>
<td>25%</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>See below</td>
<td>50%</td>
</tr>
</tbody>
</table>

Guidelines for all Graded Activities

On homework assignments and exams, focus on the completeness, clarity and logical structure of your solutions. You should not only directly answer the question, but also provide to a reader an explanation of how you arrived at that answer. Numbers or calculations with no explanation are not satisfactory and will not receive full credit.

As is usually the case in graduate school, you are encouraged to work together. However, each student must turn in his or her own write-up of the solutions in a timely manner. Failure to do so will result in a loss of credit.

Exams

Both exams will be based on the textbook, homework assignments and class discussions, and will take place during class time via Zoom. Both exams are closed book: you may not consult the text, your notes, or any other material, nor may you communicate with each other while taking tests.

Testing Procedure

Class will meet on test dates a few minutes before 1:00 pm via Zoom. I will email the test questions to students at 1:00 pm, and students will solve the test while connected to Zoom, with video. Tests will need to be scanned and uploaded to an eCourseware dropbox by 4:00 pm.

Missing a Test

I do not offer makeup exams. Valid excuses for missing an exam include a verified illness or special family circumstances (e.g. death of a member of the immediate family). To be excused from an exam, you must notify me via university email before the exam begins. If you are excused, your course grade will depend on your homework grade and on your performance on the other exam.
Homework Assignments

The homework will consist of one assignment per week, which will be graded. These assignments are designed to challenge and may be time intensive, with the goal of providing you with some essential tools for graduate school.

Availability

All homework assignments will be posted on eCourseware (opens in new window).

Due Dates

Homework assignments are due on Fridays, starting on August 21 through November 13, with the exception of October 23 (the Friday after the Midterm Exam). There will be a last homework assignment – a short one – due on Tuesday November 17. You are required to turn in your write-ups via eCourseware dropbox each week by the due date at 11:59 pm. Late assignments will not be received.

Presentation Requirement

Homework write-ups must be typed. The preferred document preparation tool is LaTeX, a typesetting code protocol that is considered the standard for academic papers. However, you are free to use any other software such as Lyx, Scientific Workplace, Scientific Word, etc.

Final Course Grades

Final course grades are earned according to the following table:

<table>
<thead>
<tr>
<th>Point Range</th>
<th>Assigned Grade</th>
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</thead>
<tbody>
<tr>
<td>90-100 Points</td>
<td>A</td>
</tr>
<tr>
<td>80-90 Points</td>
<td>B</td>
</tr>
<tr>
<td>70-80 Points</td>
<td>C</td>
</tr>
<tr>
<td>60-70 Points</td>
<td>D</td>
</tr>
<tr>
<td>Under 60 Points</td>
<td>F</td>
</tr>
</tbody>
</table>

Final Exam Schedule

The final exam for this class is scheduled according to the Registrar’s academic calendar website (opens in new window).
Course Topics

Below is a tentative list of topics that will be covered throughout the course. Textbook chapters and sections associated with the material are provided in parentheses. A detailed schedule detailing the contents to be covered each week will be provided on eCourseware.

1. Preferences and Utility (Ch. 1)
   a. Preferences (Sec. 1.1)
   b. Utility Functions (Sec. 1.4)
2. Consumer Preferences (Ch. 4)
   a. Bundles of goods (Sec. 4.1)
   b. Preferences over bundles (Sec. 4.2)
   c. Properties (Sec. 4.3 – 4.6)
3. Choice and Rational Choice (Ch. 2, Sec 2.1)
4. Consumer behavior (Ch. 5)
   a. Budget sets (Sec. 5.1)
   b. Demand Function (Sec. 5.2)
   c. Rational Consumer (Sec. 5.3)
   d. Differentiable Preferences (Sec. 5.4)
   e. Rationalizing Demand (Sec. 5.5)
   f. Properties of Demand Functions (Sec. 5.6)
5. Applications of Consumer Behavior (Ch. 5)
   a. Expenditure Minimization and Hicksian demand (Prob. 5)
   b. Intertemporal Consumption (Prob. 8, 9)
6. Uncertainty (Ch. 3)
   a. Lotteries (Sec. 3.1)
   b. Preferences over Lotteries (Sec. 3.2)
   c. Expected Utility (Sec. 3.3)
   d. Risk Aversion (Sec. 3.5)
7. Applications of Expected Utility (Ch. 3)
   a. Certainty Equivalent and Insurance (Problem 9)
8. Producer Behavior
   a. The producer (Sec. 6.1)
   b. Output Maximization (Sec. 6.2)
   c. Profit Maximization (Sec. 6.3)
   d. Cost Function (Sec. 6.4)
9. Monopoly
   a. Basic Model (Sec. 7.1)
   b. Uniform Price Monopolistic Market (Sec. 7.2)
   c. Discriminatory Monopoly (Sec. 7.3)
10. Equilibrium and Pareto Stability (Ch. 8 and 9)
    a. The Jungle (Sec. 8.1)
    b. Equilibrium (Sec. 8.2)
    c. Pareto Stability (Sec. 8.3)
    d. Relationship between Equilibrium and Pareto Stability in a Jungle (Sec 8.4)
    e. Jungle with Externalities (Sec. 8/6)
    f. A Market (Sec. 9.1)
    g. Equilibrium and Pareto Stability in a Market (Sec. 9.3)
Course Policies

FCBE COVID-19 Notice

Please access the FCBE COVID-19 Notice (opens in new window) for relevant information.

E-MAIL

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a “full mailbox” condition, etc.) is the student’s responsibility.

Attendance

As this is a graduate class, the assumption is that you all have the drive and intention to attend all synchronous sessions. Your full engagement in the class begins on the first day of the semester and should be maintained until the end of the semester. Students are responsible for all the material covered in class, even if they are unable to attend.

For students receiving funding, any lack of engagement in the course may potentially impact access to funding in the future.

Adding / Dropping

If you have questions about adding or dropping classes, please refer to this page on the Registrar’s website (opens in new window).

Academic Integrity

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a “Solutions Manual” is considered cheating. Should your professor have evidence that using a “Solutions Manual” has occurred, he/she may take steps as described on the campus’ Office of Student Conduct website (opens in new window).

If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College’s Website on Academic Integrity (opens in new window).

Inclement Weather

If inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an Inclement Weather Hotline at 901.678.0888 as well as the LiveSafe App (opens in new window), an emergency alert app for students, faculty and staff. This optional service is used in the event of an on-
campus emergency, an unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather.

**Syllabus Changes**

The instructor reserves the right to make changes as necessary to this syllabus. If changes are needed during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on eCourseware (opens in new window).

**Student Services**

Please access the FCBE Student Services (opens in new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance
<table>
<thead>
<tr>
<th>Module</th>
<th>Week of</th>
<th>Topic</th>
<th>Osborne &amp; Rubinstein Chapters</th>
<th>Practice Problems</th>
<th>HW</th>
<th>HW Due</th>
<th>Specific Goal</th>
</tr>
</thead>
</table>
| Intro  | 18-Aug  | Introduction | 1. Preferences and Utility  
Definition 1.7.  
Lemma 1.1 and its proof, included in Subsection 1.4. Utility Functions.  
Reading the rest of the chapter may be helpful to understand the context, but is not required at this point. | NA | NA | NA | Discuss the mechanics of the course.  
Provide a brief introduction to the course.  
Exercise: How to read through a proof. |
| 1      | 25-Aug  | Set Theory Review & Preferences | 1. Preferences and Utility  
1.1. Preferences: Definitions 1.2, 1.2, 1.3, 1.4.  
1.4. Utility Functions: Definition 1.6, 1.7  
Example 1.1, Lemma 1.1, Propositions 1.1, 1.3 | Chapter 1: Problems 1a, 1b, 6, 7b | HW 1 | Friday 28-Aug 11:59 pm | Understand and interpret the mathematical representation of consumer preferences and their use in Microeconomic Theory. |
| 2      | 1-Sep   | Consumer Preferences | Chapter 4. Consumer Preferences:  
4.2. Preferences over bundles: Examples 4.1, 4.2, 4.4.  
4.3. Monotonicity: Definitions 4.2, 4.3.  
4.5. Convexity: Definition 4.5, Propositions 4.2, 4.3.  
4.6. Differentiability: Definition 4.6, Proposition 4.4. | Chapter 4: Problems 1a, 2, 4, 5 | HW 2 | Friday 4-Sep 11:59 pm | Recognize the main assumptions on utility functions and their interpretation. |
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Chapter 2: Choice</th>
<th>Chapter 5: Consumer Behavior (continued)</th>
<th>HW</th>
<th>Deadline</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>8-Sep</td>
<td>Choice &amp; Utility Maximization</td>
<td>2.1. Choice and Rational Choice: Definition 2.1, Examples 2.1, 2.2, 2.3, 2.4, 2.3. Property alpha: Definition 2.3, Proposition 2.1</td>
<td>5.3. Rational Consumer: Definition 5.3, Proposition 5.1, Example 5.5, 5.6, 5.4. Differentiable Preferences: Definition 5.4, Proposition 5.2, Examples 5.7, 5.8.</td>
<td>Chapter 2: Problems 2, 5, 6</td>
<td>HW 3</td>
<td>Friday 11-Sept 11:59 pm</td>
</tr>
<tr>
<td>4</td>
<td>15-Sep</td>
<td>Consumer Behavior</td>
<td>Chapter 5: Consumer Behavior</td>
<td>Chapter 5: Problems 3+Additional material</td>
<td>HW 4</td>
<td>Friday 18-Sept 11:59 pm</td>
<td>Derive the Marshallian demand function by solving the consumer utility maximization problem and its properties.</td>
</tr>
<tr>
<td>5</td>
<td>22-Sep</td>
<td>Consumer Behavior</td>
<td>Chapter 5: Consumer Behavior (continued)</td>
<td>Chapter 5: Problem 3+Additional material</td>
<td>HW 5</td>
<td>Friday 25-Sept 11:59 pm</td>
<td>Recognize the conditions under which choice can be rationalized. Identify the effects of price changes on consumption.</td>
</tr>
<tr>
<td>6</td>
<td>29-Sep</td>
<td>Consumer Behavior (applications)</td>
<td>Chapter 5: Consumer Behavior - Applications</td>
<td>Chapter 5: Problems 5,8,9 + Additional material</td>
<td>HW 6</td>
<td>Friday 2-Oct 11:59 pm</td>
<td>Derive compensated demand by solving the consumer expenditure minimization problem and identify its properties. Apply the consumer utility maximization framework to borrowing and lending decisions in a simple context.</td>
</tr>
</tbody>
</table>
### Chapter 3: Uncertainty

#### 3.1. Lotteries:
- Definition 3.1.
- Preferences over Lotteries: Examples 3.1, 3.2, 3.3, Definitions 3.2, 3.3, 3.4, Lemma 3.3, 3.3. Expected Utility: Definition 3.5, Propositions 3.1, 3.2.

#### 3.2. Preferences over Lotteries: Examples

- Chapter 3: Problems 1, 2 + Additional material
- HW 7
- Friday 9-Oct 11:59 pm

Understand the mathematical representation of preferences over uncertain alternatives.

### Chapter 3: Uncertainty - Applications

#### 3.4. Theory and Experiments,
- Definition 3.6.

#### 3.5. Risk Aversion:
- Additional Material: Certainty equivalent, Insurance, Arrow-Pratt coefficient.

- Chapter 3: Problems 8, 9a + Additional material
- HW 8
- Friday 16-Oct 11:59 pm

Understand decision making under uncertainty and the mathematical representation of attitudes towards risk.

### Chapter 6: Producer Behavior

#### 6.1. The producer:
- Definition 6.1.

#### 6.2. Output maximization:
- Definition 6.2., Propositions 6.1, 6.2

#### 6.3. Profit Maximization:
- Definition 6.3, Propositions 6.3, 6.4

#### 6.4. Cost Function:
- Definition 6.4, Proposition 6.5, 6.6, 6.7

#### 6.5 Producer's preferences

- Chapter 6: Problems 1,2,3,4
- HW 9
- Friday 30-Oct 11:59 pm

Understand the properties of firm production, cost and profit maximization decisions when producers are price takers.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Chapter 7: Monopoly</th>
<th>Chapter 8: Jungle</th>
<th>Chapter 9: Market</th>
<th>Assignment Due Date</th>
<th>HW</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>10-Nov</td>
<td>Jungle</td>
<td></td>
<td></td>
<td></td>
<td>HW 11</td>
<td>Thursday 13-Nov 11:59 pm</td>
<td>Understand and apply the concepts of equilibrium and Pareto stability. Identify the effects of externalities on the relationship between equilibrium and Pareto stability.</td>
</tr>
<tr>
<td>12</td>
<td>17-Nov</td>
<td>Jungle / Market</td>
<td></td>
<td></td>
<td></td>
<td>HW 12</td>
<td>Tuesday 17-Nov 11:59 pm  Understand and apply the definition of a market equilibrium. Identify the differences between the outcomes of different allocation mechanisms under a similar setup.</td>
<td></td>
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<tr>
<td>13</td>
<td>24-Nov</td>
<td>FINAL EXAM</td>
<td></td>
<td></td>
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