Game Theory and Economic Activity
ECON 487
Course Syllabus
Fall 2016

REQUIRED TEXT:

PREREQUISITES: MATH 111 or 119 and ECON 201

MY OFFICE: Rich Memorial Bldg #333
MY OFFICE HOURS: Thursdays 10:30-11:30 AM, Fridays 11:30AM-1:30PM
E-MAIL: smialon@emory.edu
COURSE WEB PAGE: Blackboard
TA: TBA

Course Description and Objectives

Game theory studies strategic interactions among people. Often, the right choice for us depends on the choices made by others. In turn, the choices of others depend on the actions that we take. Game theory offers a systematic and analytical framework to understand the optimal, strategic decision in such an interactive situation. For this reason, game theory has been applied to many fields of social science such as economics and politics.

The goals of this course are to give you an introduction to strategic thinking and to show you how to use the framework of game theory in understanding human behavior and answering real-world economic questions.

Game theory has emerged as a field in mathematics. Thus, our approach of applying game theory to real world examples will be intrinsically analytical and often quantitative. While I intend to keep the level of math to a minimum, you should be prepared to use calculus often and to get used to mathematical terms.

We will focus on non-cooperative game theory and its applications. We will use equilibrium analysis to study topics including the use of credible threats and commitment, strategic use of information through signaling and screening, negotiation and bargaining, economic analyses of law and social institutions such as marriage, family, and schools.
Textbook and Other Readings

The textbook for this course is *Games, Strategies, and Decision Making* by Joseph E. Harrington (Worth Publishers, 2014). Sometimes, I often use examples not provided in your textbook. However, my lecture materials will primarily be based on the materials in the textbook. Reading the chapters ahead of time are welcome as it will help you understand the lecture materials quickly. Reviewing the chapters and your notes after my lectures will be critical for successful course work in this class. If you cannot do both, you should at least review the lecture materials every week.

Since one of my primary goals in this course is to teach you how to apply the framework of game theory in answering real-world economic questions, to achieve this goal, I have chosen several articles on various topics for reading. The reading list is provided at the end of this syllabus. The articles will show you how you can use game theory to answer many economic questions. We will discuss some of the articles in class. Anything that we cover in class is a subject to cover in preparing for your test. Thus, the articles covered in class will be included in the test materials.

Grading System

Course grades will be determined on the basis of your relative performance in the class. Your course work requires

<table>
<thead>
<tr>
<th>Grade Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Two midterm exams (55%)</td>
<td></td>
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<tr>
<td>Final Exam (40%)</td>
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<tr>
<td>Class Participation (5%)</td>
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<td>Total 100%</td>
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Exams

1. There are **two midterm exams**.
   - The first midterm exam is scheduled on **September 30 (F)**.
   - The second midterm exam is scheduled on **November 11 (F)**.

The two midterm exams account for 55% of your course grade. Of the two exams, the best score will account for 30%, and the other will account for 25%. **All tests are based on my lecture materials.** Midterm exams and NOT cumulative.

2. Your final exam is CUMULATIVE and accounts for 40% of your final grade.
   - The final exam is scheduled on **Monday, December 14 from 8:00-10:30 AM. (Location TBA)**

3. **Make-up exams are NOT offered in any cases.**
4. **A student arriving late to an exam session will not be allowed to take the exam** if other examinees have left before the student arrives.
Course Website and Contact Information

The course website is Blackboard. You will be able to download word or PDF version of course materials (including syllabus, class ppt slides, handouts, answers for exercise questions, and articles) from Blackboard. I can be reached via email at smialon@emory.edu. In most cases, talking in person is a much more efficient way to actually get you the explanation you need than emailing.

Issues of Academic Integrity

Academic integrity is one of the most important values within an academic community. Violations of academic integrity include cheating, plagiarism, and improper collaboration. The following describes the standards of academic integrity that apply to this course. Exams are to be done without any outside help. This means that you may not use books, notes, laptops, or “cheat sheets.” You may use standalone calculators during the exams; this means that you may not use a calculator on a cell phone, PDA, laptop, or other device that can be used to communicate or take notes. You should not bring scratch paper into exams; it will be provided. There should be no communication between students during exams, either one way (peeking at or copying someone else’s work) or two way (sharing answers with or helping out another student.)

Important Dates

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>First Day of Classes</td>
<td>August 24 (W)</td>
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<tr>
<td>Last Day to Add/Drop/Swap</td>
<td>September  (W)</td>
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<tr>
<td>1st Midterm Exam</td>
<td>September 30 (F)</td>
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<tr>
<td>Fall Break</td>
<td>October 10-11</td>
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<tr>
<td>2nd Midterm Exam</td>
<td>November 11 (F)</td>
</tr>
<tr>
<td>Last Day of Classes</td>
<td>December 6 (T)</td>
</tr>
<tr>
<td>Final Exam</td>
<td>December 14 (M) 8:00-10:30 AM</td>
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AMERICANS WITH DISABILITIES ACT STATEMENT

Students with disabilities needing academic accommodations should (1) register with and provide documentation to the Office of Disability Services (ODS) at Emory University, and (2) bring a letter to me from ODS indicating that you need academic accommodations. This should be done within the first week of class.
## Tentative Course Plan and Reading List

<table>
<thead>
<tr>
<th>Date</th>
<th>Session</th>
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</table>
| By Aug. 26 (F) | Syllabus.  
Ch 1. Introduction to Strategic Reasoning  
Reading: Ch 1  
The Economists, 2005, “Games People Play” |
| By Sep. 2 (F) | <MODEL OF A STRATEGIC SITUATION>  
Ch 2. Building a Model of Strategic Situation  
Ch 3. Eliminating the Impossible  
Reading: Ch 2,3 |
| By Sep. 9 (F) | <Static Games with Complete Information>  
Ch 4. Stable Play: Nash Equilibria in Discrete Games with Two or Three Players  
Reading: Ch 4  
| Sep. 16 (F) | <Static Games with Complete Information>  
Ch 6. Nash Equilibria in Continuous Strategy Games  
Reading: Ch 6 |
| Sep. 27 (T) | Ch 7. Keep ‘Em Guessing: Randomized Strategies (Mixed Strategy Nash Equilibrium)  
Reading: Ch 7  
| Sep. 29 (TH) | Catch up and Review |
| Sep. 30 (F) | 1st Midterm exam |
| By Oct. 14 (F) | <Static Games with Incomplete Information>  
Ch 10. I Know Something You Don’t Know: Games with Private Information  
(Bayesian Nash Equilibrium)  
Reading: Ch 10  
| Oct. 21 (F) | <Dynamic Games with Perfect Information>  
Ch 8. Taking Turns: Sequential Games (Backward Induction and Subgame Perfect Nash Equilibrium)  
Reading: Ch 8 |
| Oct. 28 (F) | <Dynamic Games with Imperfect Information>  
Ch 9. Taking Turns in the Dark  
(“Limited” Backward Induction and Limitation of Subgame Perfect Nash Equilibrium)  
Reading: Ch 9 |
| Nov. 8 (T) | <Dynamic Games with Incomplete Information I>  
Ch 11. What You Do Tells Me Who You Are (Perfect Bayesian Nash Equilibrium)  
Reading: Ch 11 |
<table>
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<tr>
<th>Date (Day)</th>
<th>Event</th>
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<tbody>
<tr>
<td>Nov. 10 (TH)</td>
<td>Catch up and review</td>
</tr>
<tr>
<td>Nov. 11 (F)</td>
<td>2nd Midterm exam</td>
</tr>
</tbody>
</table>
| Nov. 18 (F) | <Dynamic Games with Incomplete Information II>  
Ch 11. What You Do Tells Me Who You Are  
Signaling Games  
Reading: Ch 11  
*H. Mialon and S. Mialon, 2012, “Go Figure: The Strategy of Nonliteral Speech”  
< Cheap Talk>  
Ch 12: Lies and the Lying Liars That Tell Them: Cheap Talk Games  
Reading: Ch 12 |
| Dec. 2 (F) | <Repeated Games>  
Ch 13. Playing Forever: Repeated Interaction with Infinitely-Lived Players  
Reading: Ch 13  
<Evolutionary Games>  
Ch 16. Evolutionary Games: Evolutionarily Stable Strategies (ESS) and Stability of Equilibrium |
| Dec. 6 (T) | Classes end |
| Dec 14 (M) | Final Exam 8:00~10:30am |