

ECO 6409 (011H)
Game Theory Applied To Business Decisions

J. Hamilton
Spring 2016

Game Theory Applied To Business Decisions

Class: Tuesdays and Thursdays, 5th and 6th periods, HGS 150

Office Hours: Wednesdays 10:00 am – 12:00 noon. For other times, please make an appointment.

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Prerequisites: ECP 5702 Managerial Economics

(If you have not taken this course or a close equivalent, please discuss this with me no later than immediately after the first meeting.)

Mathematics Needed: This class will employ basic differential calculus (maximization with respect to several variables) and some basic probability in lectures, problem sets, and exams. Problem sets and exams will not require proofs. Game theory does require using logic to develop many arguments, so be prepared to think rigorously.

Requirements:

1) *Problem Sets* (30% of final grade)

There will be 2 problem sets. You will have 12-14 days to complete each assignment.

These will prepare you for the questions on the final exam. These will be group exercises (3 students per group).

2) *Class participation* (20% of final grade)

At times, we will discuss readings in class. I expect all students to have read that material in advance and to be prepared to discuss it.

Attendance at all class sessions is expected. Please inform me in advance if you will miss class for interviews or similar professional obligations. Please inform me if you miss class due to illness. Anyone who misses more than one class will be required to do a brief written assignment on the material missed. This grade is based not simply on attendance, but on the quality of your participation in the case discussions.

3) *Final Exam* (50% of final grade)

Thursday, February 25, 5-6th periods

(If you have a conflict, let me know soon to schedule another time.)

This will consist of problems and short essays.

To facilitate student discussion, I will designate some classes as NO LAPTOP days. Failure to comply may affect your class participation grade.

Text: Harrington, *Games, Strategies, and Decision Making*, 2nd edition, Worth Publishers, 2015
(all chapter assignments on syllabus refer to this text)

Other Recommended Books (on overnight reserve in Smathers Library West):
Dixit and Nalebuff, *Thinking Strategically* or *The Art of Strategy*
Dixit and Skeath, *Games of Strategy*

Additional Readings (to be posted on Canvas)
To Be Announced in Class and in Emails

Syllabus **(subject to change)**

Jan 5 Introduction
 What is Game Theory?
 How Can We Use It in Business Decisions?
 How Do We Address and Model Strategic Decisions in Game Theory?

Chapter 1 and 2

Jan 7 What Not to Do (and More)
 Nash Equilibrium in Strategic Form Games

Chapter 3

Jan 12 Nash Equilibrium in Strategic Form Games (continued)

Chapter 4 and 5

Jan 14 Nash Equilibria in Extensive Form Games
 Backward Induction and Subgame Perfection with Perfect Information

Chapter 8 and 9

Jan 19 Mixed Strategies

Chapter 7

Jan 21 Games with Continuous Strategy Sets
 Bertrand and Cournot Oligopoly Models

Chapter 6

Jan 26 Multistage Games
 Location Models

TBA

Jan 28-Feb 2 Sequential Games with Imperfect Information
 Private Information
 Signaling Games

Chapters 10 and 11

Feb 4	Applications 1 Strategic Moves
<i>TBA</i>	
Feb 9	Applications 2 Contract Design: Incentives and Tournaments
<i>TBA</i>	
Feb 11-16	Repeated Games <i>Chapters 13 and 14</i>
Feb 18	Review for Exam
Feb 24	Final Exam 5-6 th periods

Enrollment in this course constitutes acknowledgement of the following:

- 1) I understand that the University of Florida expects its students to be honest in all of their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action, up to and including expulsion from the University.
- 2) I will adhere to University copyright policies as found at <http://www.uflib.ufl.edu/admin/Copyright.htm>.
- 3) Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.