

## ECON 396-001: Introduction to Game Theory

**Instructor:** James Bono

**Class Location:** Ward 107

**Class Meeting Time:** 12:45-2:00

**Term:** Fall 2008

**Website:** Please See Blackboard Site

**Office Location:** Roper 215

**Office Hours:** Monday 2:30-5:30pm, Friday 9-11am (tentative)

**Email:** bono@american.edu

**Office Phone:** (202) 885-2712

**Required Text:** *An Introduction to Game Theory* Martin Osborne, Oxford University Press, 2004. ISBN 0-19-512895-8; ISBN-13: 978-0-19-512895-6.

**Grading Criteria:** 100 regular points and 4 extra credit points.

- 4 Problem Sets (4 pts each)
- 8 Quizzes (2 pts each)
- Midterm 34 pts
- Final 34 pts
- 4 Extra Credit Online Exercises (1 pt each)

### Overview and Objectives:

Wikipedia defines game theory as,

“a branch of applied mathematics and economics that studies situations where multiple players make decisions in an attempt to maximize their returns. The essential feature is that it provides a formal modelling approach to social situations in which decision makers interact with other agents.”

While some researchers use this approach to predict behavior, others claim that it is merely a window into studying the considerations of strategic interaction. You can make up your own minds about its purpose. But first, a

word of caution. It might be tempting to use game theory to make normative conclusions (i.e. in this situation people *should* do...), but it is important to remember that our models are simplified representations of the real world and never tell the entire story.

This course will introduce you to the way game theory studies a wide range of problems, from oligopoly pricing to auctions to the evolution of trust. We will use mathematical tools to formalize the analysis, but economic intuition will be equally important.

**Email:**

Class updates will be sent to the course mailing list, so students are required to check the email address that is registered with my.american.edu.

**Problem Sets:**

I will distribute four problem sets. They will be collected. Students should consider them as reviews for the midterm and final.

I strongly encourage you to work together on the problem sets. Form study groups and meet regularly. However, you should be sure that you master the material yourself as there will not be group work on the tests (obviously).

**Quizzes:**

There will be 8 short pop-quizzes throughout the course. The quizzes will review important concepts from recent classes. There are no make up quizzes, even if you come late to class. However, I will drop the lowest score and replace it with the highest.

**Exams:**

No one (including me) likes exams, but they are necessary in order to ensure you comprehend the material and to assign grades. With that said, the exams are designed to be challenging but fair. The final is not cumulative.

Make-up exams will only be given in the event of a legitimate documented excuse. Because students that require make-up exams gain an informational advantage over their classmates, the make-up exam will be more detailed and more technical than the original. Please notify me as soon as a conflict arises.

**Online Exercises:**

A site developed by a famous game theorist, Ariel Rubinstein, called Games

and Behavior, allows students to take part in game theory research. Four times throughout the term, I will arrange surveys on this site for you to voluntarily complete. To participate, you can log onto <http://gametheory.tau.ac.il/student/> and use the following:

- Course Number: 1509
- Email: (the one on my.american.edu)
- Class Password: 5914

**Cheating and Plagiarism:**

Written work that you hand in is assumed to be original unless your source material is documented appropriately. Using the ideas or words of another person, even a peer, or a web site, as if it were your own, is plagiarism. Cheating and plagiarism are serious academic offenses. Students should read the Academic Integrity Code section of the *Student Handbook*.

**Schedule**

Introduction and Decision Theory pp. 1-7

Nash Equilibrium Chapters 2 & 3

Mixed Strategies Chapter 4

Extensive Games with Perfect Information Chapters 5, 6 & 7

10/10 - Midterm

Asymmetric Information & Mechanism Design pp. 331-335 & Lecture-Only Material

Repeated Games Chapters 14 & 15

Coalitional Games Chapter 8

Evolutionary Games Chapter 13

Bargaining Chapter 16 (time permitting)

12/12 - Final (not cumulative)