

North Carolina State University
Department of Economics
ECG 790, Special Topics - Game Theory
2403 Nelson Hall, TH 3:00-4:15
Fall 2011

Instructor:

Dr. Thayer Morrill
Office: 4148 Nelson Hall
E-mail: thayermorrill@gmail.com

Office Hours:

Office hours are by appointment, but I encourage you to come. I am happy to talk about material in the course or your own research ideas. Especially your own research ideas! Feel free to stop in whenever I am in the office, or send me an email to schedule a specific time.

Textbook:

Gibbons, *Game Theory for Applied Economists*

Prerequisite:

This course assumes you have had an introduction to game theory (as provided in ECG 700 or 702). If you have not, you can easily catch up by reviewing the first several chapters of Gibbons. We will spend about a week quickly reviewing what is covered in ECG 700 and then move on to more advanced subjects.

Grading

Your grade will consist of the following components:

- Paper presentation (30%):
Each student will be expected to lead class discussion of a journal article. You are expected to prepare a formal beamer or powerpoint presentation of the material. You will be graded on both the mastery of the material and the professionalism of the presentation. I will provide a list of articles to choose from. You may also suggest a particular article, and I will decide if it is appropriate for the course.
- Research idea (20%):
Each student will be expected to write a two page research proposal related to market design or experimental economics. The emphasis is on the creativity of the idea. You do not need to prove any theorems or do any of the actual research. Instead, you should try to think of a behavioral anomaly or a market failure. For a behavioral anomaly, you should discuss how you would go about designing an experiment to test it. For a market failure, you should explain what a market intervention might look like.

- Homework (40%):
There will be two or three take-home problem sets.
- Newspaper article (10%):
Each student needs to find a newspaper article that describes a business, government agency, or person who did not take into account that people react strategically.

Each day you are expected to read Al Roth's market design blog. The address for the blog is:

<http://marketdesigner.blogspot.com/>

I expect you to have read the posts and to be prepared to discuss it in class.

Course Web Page

The course's web page is:

<http://thayermorrill.com/courses/ECG790/>

All course materials will be stored here. Lectures and exams will be in a password protected area. The username and password are:

Username: ECG790

Password: MidPines

Course Outline

This course will cover game theory from multiple angles. The general topics we will discuss are classical game theory, cooperative game theory, auction theory, market design, and experimental economics. If we have time, we will discuss decision theory such as Arrow's impossibility theorem. The idea is to introduce game theory (classical and cooperative), discuss how it is applied to real world problems (auction theory and market design), and finally discuss how our conclusions are tested.

1. Game Theory Introduction/Review
 - (a) Herding Behavior
 - (b) Static Games of Complete Information
 - (c) Dynamic Games of Complete Information
 - (d) Bayesian Games
2. Auction Theory

- (a) Ausubel, “Auction Theory for the New Economy”.
 - Classic Auctions
 - Revenue Equivalence
 - (b) Ausubel, “The Lovely but Lonely Vickery Auction”.
 - The Vickery Auction
3. Cooperative Game Theory
- (a) The Core
 - (b) Marriage Games
 - (c) Housing Allocation Games
4. Market Design
- (a) Doctor/Hospital assignment
 - (b) Public School Choice
 - (c) Kidney Exchange
5. Experimental Economics