

## Econ 511H: Game Theory in Economics Spring 2014

**Instructor:** Peter Norman Gardner 300C, normanp@email.unc.edu

**Office Hours** Wednesdays 2:30-3:30 or by appointment.

**Logistics:** We meet in Tuesdays and Thursdays in Gardner 007 at 2pm.

**Course Description:** In this course we will study how strategic real world situations can be described as mathematical games. To do so we will define and examine the concept of a strategy, examine what it means to be rational or irrational, and define solution concepts that correspond to different assumptions about how well players can coordinate play as well as differences in assumptions about the sequential and informational structure. Most of these more abstract ideas will be illustrated in terms of applications such as bargaining, signalling, oligopoly, and dynamic pricing.

**Exams and Grades:** All graded components fall under the jurisdiction of the Honor Code. If you have any questions concerning the Honor Code Policy for this course, please ask.

There will be two in class midterms, March 7 and April 10 (25% of the grade each). Instead of a final exam you will have to write a short term paper. This paper accounts for 30% of the grade. In addition, you will have to present your paper in class, and this presentation carries a 10% weight. The remaining 10% of the grade will be based on the problem sets, which will be handed out on a weekly basis. Cooperation when solving the problems is encouraged, but you should hand in answers individually.

**The Term Paper:** I will provide details about expectations about the term paper in class. You may work in groups of up to 3 students. The timetable is as follows:

- By February 20 you should hand in a brief synopsis, containing a title, a one paragraph abstract, and a brief (roughly one page) description of what you intend to accomplish.
- By March 27 you should hand in a draft of your paper.
- By April 10 you should hand in the final version of the paper.

**Textbook:** *A Course in Game Theory* by Martin J. Osborne and Ariel Rubinstein, ISBN-13: 978-0262650403 0. Other books that could be helpful are 1) Gibbons R, *Game Theory for Applied Economists*, Princeton University Press, Princeton NJ, 1992, ISBN-13: 978-0691003955, and; 2) Osborne M. J. *An Introduction to Game Theory*, Oxford University Press, 2003, ISBN-13: 978-0195128956.

In addition to the textbook I will expect you to read a few research articles that will be announced later.

### **Outline:**

1. Games in Normal Form
2. Games in Extensive Form
3. Mixed Strategies
4. Games of Incomplete Information
5. Signalling
6. Bargaining
7. Repeated Games
8. Information Economics