

Econ 511: Game Theory in Economics Spring 2015

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

Office Hours Wednesdays 3:00-4:00 or by appointment.

Logistics: We meet Tuesdays and Thursdays at 11:00-12:15 in GA 007.

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 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 5 and April 7 (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. You are encouraged to cooperate when solving the problems, but you should hand in 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 17 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 19 you should hand in a draft of your paper.
- By April 9 you should hand in the final version of the paper.

Textbook: *An Introduction to Game Theory*, by M.J Osborne (Oxford University Press, 2003, ISBN-13: 978-0195128956) is required. A more advanced treatment can be found in M J. Osborne and A. Rubinstein, "A Course in Game Theory (ISBN-13: 978-0262650403 0.) R. Gibbons, *Game Theory for Applied Economists* (Princeton University Press, Princeton NJ, 1992, ISBN-13: 978-0691003955) is also recommended. 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