Game Theory and Experiments

ECON 6206-001/ PPOL 8000-002/ INES 8090-E03

Spring 2013

Class meeting time and place: 2pm-3:15pm TR, Friday 128
Instructor: Artie Zillante
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Office hours: 1pm-2pm TR
3:15pm-4:15pm T and by appointment
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Course Description

The focus of the course will be on game theoretic analysis and the experimental methodology which can be used to test game theoretic models. The primary topics in game theory covered will be static games with complete information (normal form games), dynamic games with complete information (extensive form games), static games with incomplete information (Bayesian equilibria), and dynamic games with incomplete information (signaling games). The last portion of the course will focus on how to design an economic experiment for the testing of game theoretic models.

Course Objectives

By the end of the course, students should:

1. Be familiar with the fundamental solution concepts of game theory
2. Be able to use the solution concepts in analyzing strategic situations that differ in the timing of the players' moves and the amount of information available
3. Be able to design laboratory economic experiments to test theoretical predictions of game theory
4. Be able to detect the limitations of game theoretic predictions
5. Be able to distinguish well designed economic experiments from poorly designed ones
6. Be able to suggest how experimental methods may be beneficial to policy makers

Website

The website is http://belkcollegeofbusiness.uncc.edu/azillant/ECON6206.html. This link will take you directly to materials for this course. From this site you may obtain a copy of the course syllabus, a course calendar, lecture outlines, and problem sets. Of particular importance are the problem sets – these are additional example problems outside of those provided during class. While they will not be collected and graded, students should work these problems as they are helpful in understanding the material. Other materials may be added during the semester.

Grading

Grades for the course will be based on two exams and a final project, each of which counts for one-third of the final grade. Grades are determined as follows:

85%-100% – A
70%-84% – B
55%-69% – C
0%-54% – U

Books and Materials

Required:

Gibbons, Robert. *Game Theory for Applied Economists*. Princeton University Press, 1992.

Friedman, Dan and Alessandra Cassar. *Economics Lab: An Intensive Course in Experimental Economics*. Routledge, 2004.

Supplemental texts and articles are listed throughout the syllabus.

Tentative Course Outline

Week 1: Introduction to models

Varian, Hal. "How to Build an Economic Model in Your Spare Time" *American Economist* 41 (1997) 3-10.

Weeks 2-3: Static Games of Complete Information
*Gibbons, Ch. 1

Nash, John. "Equilibrium Points in n-Person Games" *Proceedings of the National Academy of Sciences* 36 (1950) 48-49.

Nash, John. "Non-Cooperative Games" *Annals of Mathematics* 54 (1951) 286-295.

Weeks 4-5: Dynamic Games of Complete Information
*Gibbons, Ch. 2

Kuhn, H.W. "Extensive Games and the Problem of Information" *Contributions to the Theory of Games II* (1953) 193-216.

Selten, R. "Reexamination of the Perfectness Concept for Equilibrium Points in Extensive Games" *International Journal of Game Theory* 4 (1975) 25-55.

Weeks 6-7: Static Games of Incomplete Information
*Gibbons, Ch. 3

Harsanyi, J. "Games with Incomplete Information Played by Bayesian Players, I-III. Part I. The Basic Model" *Management Science* 14 (1967) 159-182.

Harsanyi, J. "Games with Incomplete Information Played by Bayesian Players, I-III. Part II. Bayesian Equilibrium Points" *Management Science* 14 (1968) 320-334.

Harsanyi, J. "Games with Incomplete Information Played by Bayesian Players, I-III. Part III. The Basic Probability Distribution of the Game" *Management Science* 14 (1968) 486-502.

Weeks 8-9: Dynamic Games of Incomplete Information
*Gibbons, Ch. 4

Weeks 10-12: Designing and Running Experiments
*Friedman and Cassar, Ch. 2-7

Smith, V. "An Experimental Study of Competitive Market Behavior" *Journal of Political Economy* 70 (1962) 111-137. Also, see Errata on pages 322-323 of the next issue of the journal.

*Smith, V. "Microeconomic Systems as Experimental Science" *American Economic Review* 72 (1982) 923-955.

Plott, C. "Economics in 2090: The Views of an Experimentalist" *Economic Journal* 101 (1991) 88-93.

Smith, V. "Constructivist and Ecological Rationality in Economics" *American Economic Review* 93 (2003) 465-508.

Kahneman, D. "Maps of Bounded Rationality: Psychology for Behavioral Economics" *American Economic Review* 93 (2003) 1449-1475.

*Harrison, G. and J. List. "Field Experiments" *Journal of Economic Literature* 42 (2004) 1009-1055.

Weeks 13-16: Papers on how experiments inform economic theory

Nagel, R. "Unraveling in Guessing Games: An Experimental Study" *American Economic Review* 85 (1995) 1313-1326.

McKelvey, R. and T. Palfrey "Quantal Response Equilibria for Normal Form Games" Games and Economic Behavior 10 (1995) 6-38.

Kaplan, T. and Ruffle, B. “Which Way to Cooperate” forthcoming in *Economic Journal*

Attendance

Attendance is not required, but given the rigorous nature of the course it is suggested that students attend all lectures. It will be particularly beneficial if you attend on the days of the experiments.

Academic Integrity

Students have the responsibility to know and observe the requirements of The UNC Charlotte Code of Student Academic Integrity (Catalog, page 275). This code forbids cheating, fabrication, or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Any special requirements or permission regarding academic integrity in this course will be stated by the instructor and are binding on the students. Academic evaluations include a judgment that the student’s work is free from academic dishonesty of any type; and grades in this course therefore should be and will be adversely affected by academic dishonesty. Students who violate the code can be expelled from UNC Charlotte. The normal penalty for a first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases the course grade is reduced to F. Copies of the code can be obtained from the Dean of Students Office. Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty to the instructor.

The Belk College of Business strives to create an inclusive academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.