

POLI 789: Game Theory

Spring 2009

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Office Hours: Tuesday 11:00am-Noon; Thursday 2pm-3pm

COURSE OVERVIEW

Game theoretic models have become a standard analytical tool in political science research. As a result, it is crucial for graduate students in political science to acquire at least a basic familiarity with game theoretic methods. The purpose of this class is to provide an introduction to game theoretic modeling, focusing in particular on non-cooperative game theory. By the end of the semester, students should be at a skill level that allows them to be intelligent consumers of applied game theoretic research as found in the major disciplinary journals and to construct simple models for applied research.

While this class does not presume any mathematical background beyond basic algebra and calculus, it is important to stress that game theory is a deductive, mathematical enterprise. Therefore, it requires abstract, symbolic reasoning. The only way to learn these skills is to practice them. You cannot learn game theory by solely listening to class lectures. You should diligently work through class notes, assigned reading, and homework.

READINGS

There is one required textbook, available at the campus bookstore:

1. [•Martin Osborne. 2004. An Introduction to Game Theory. Oxford: Oxford University Press.](#)

In general, I would encourage you to work through the assigned sections of the textbook after we have covered the material in class. In my experience, doing things in this order is most helpful in reinforcing the material. You will also be completing frequent homework assignments. As a rough guide, I expect that most students will spend 8-10 hours each week outside of class to go over material and to complete homework assignments.

GRADES AND EVALUATION

Grades will be based on participation and two take-home exams. Your participation grade will depend on your in-class participation and on completing homework assignments. I strongly encourage you to work with other graduate students on homework. At the same time, it is important to keep in mind that every student must master the material. Each week, we will devote some time to reviewing homework assignments in class, and I will feel free to call on anyone to present the solution to a problem. You may NOT collaborate on the take-home exams.

Participation: 20%

Exam 1: 40%

Exam 2: 40%

ACADEMIC DISHONESTY:

Students and faculty at UNC are governed by the Honor Code, and academic dishonesty will not be tolerated. Any student who is caught attempting to represent someone else's work as their own or to cheat in any other manner will be subject to university discipline under the Honor Code. If you have any questions regarding this policy, you can refer to the University Code of Conduct [by clicking here](#).

STUDENTS WITH CHALLENGES

Students with challenges who require individualized testing or other accommodations should identify themselves and express their needs during the first week of the semester. Where the challenge is not immediately apparent, verification will be required.

(TENTATIVE) SEMESTER SCHEDULE

SECTION 1: NORMAL FORM GAMES, MIXED STRATEGIES, AND NASH EQUILIBRIUM

WEEK 1 (1/13 and 1/15):

1. •Osborne, Chapter 1, 2, & Math Appendix

WEEK 2 (1/20 and 1/22):

1. •Osborne, Chapter 2 and 3 (except sections 3.5 and 3.6)

WEEK 3 (1/27 and 1/29):

1. •Osborne, Chapter 3 and 4 (except sections 4.11 and 4.12)
2. •[Geddes, Barbara. 1991. "A Game Theoretic Model of Reform in Latin American Democracies." American Political Science Review 85: 371-392.](#)
3. •[Tsebelis, George. "The Abuse of Probability In Political Analysis: The Robinson Crusoe Fallacy." American Political Science Review 83: 77-91.](#)

SECTION 2: EXTENSIVE FORM GAMES AND SUBGAME PERFECT EQUILIBRIUM

WEEK 4 (2/3 - no class on 2/5):

1. •Osborne, Chapter 5

WEEK 5 (2/10 and 2/12):

1. •Osborne, Chapter 6 (except section 6.4)

WEEK 6 (2/17 and 2/19):

1. •Osborne, Chapter 7 (except section 7.5)

WEEK 7 (2/24 and 2/26):

1. •Osborne, Chapter 7
2. •[Vanberg, Georg. 1998. "Abstract Judicial Review, Legislative Bargaining, and Policy Compromise." Journal of Theoretical Politics 10: 299-326.](#)

WEEK 8 (3/3 and 3/5):

1. •Review and EXAM 1 (Handed out on 3/3 - due on 3/5)

SPRING BREAK (3/10-3/12)

SECTION 3: REPEATED GAMES

WEEK 9 (3/17 and 3/19):

1. •Osborne, Chapter 14

WEEK 10 (3/24 and 3/26):

1. •Osborne, Chapter 15
2. •Milgrom, Paul, Douglass North, and Barry Weingast. 1990. "The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champagne Fairs." *Economics and Politics* 2: 1-22.

SECTION 4: BAYESIAN GAMES

WEEK 11 (3/31 – no class on 4/2):

1. •Osborne, Chapter 9 (except sections 9.6 – 9.8)

WEEK 12 (4/7 and 4/9):

1. •Osborne, Chapter 9 (except sections 9.6 – 9.8)
2. •Roger Myerson. 1992. "On the Value of Game Theory in Social Science," Rationality and Society 4:62-73.

WEEK 13 (4/14 and 4/16):

1. •Osborne, Chapter 10 (except sections 10.6 and 10.8)

WEEK 14 (4/21 and 4/23):

1. •Osborne, Chapter 10 (except sections 10.6 and 10.8)
2. •[Gilligan, Thomas and Keith Krehbiel. 1990. "Organization of Informative Committees by a Rational Legislature." American Journal of Political Science 34: 531-564.](#)
3. •[Rubinstein, Ariel. 1991. "Comments on the Interpretation of Game Theory," Econometrica 59:909-24.](#)

EXAM 2 (Handed out on 4/23 - due on 4/27)