

GOV 385N (38155)
Introduction to Formal Political Analysis

University of Texas, Spring 2015

W 930a-1230p, BAT 5.102

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Course Description and Objectives

This course is designed to develop consumer-level knowledge of formal theory (specifically game theory) in political science. The bases of this knowledge will be an understanding of the role of theory in social-scientific inquiry; the relationship between assumptions, logic, and deductions; and the implications of strategic behavior for understanding political outcomes. We will focus primarily on noncooperative game theory, introducing the concepts of Nash equilibrium, subgame perfection and other equilibrium refinements, repeated and infinite-horizon games, and games of imperfect information. Sessions will involve presenting (and practicing) game theoretic techniques before applying them to specific political questions.

Students will be responsible for weekly readings, problem sets, a midterm, a final, and a paper proposal. The problem sets are absolutely crucial to developing a facility with game theory; it is a set of skills that must be learned, cultivated, and maintained by *doing*. Due to the large amount of material, I encourage you to work together on the problem sets, as such joint effort will help you learn from each other. However, this does *not* mean that you should divide up the problems. If you do not spend time at least struggling with the exercises, you will *not* know the material well enough by the end of the class.

Requirements

The following components make up the course grade:

- 25% Midterm Exam, 5 March
- 30% Final Exam, due date TBA
- 15% Paper proposal, due date TBA

- 30% Problem sets, mostly weekly

We reserve the right to give quizzes if we feel they are necessary, and any quizzes will be incorporated into the homework grade. The midterm and final may be open-book, take-home exams or closed-book in-class affairs; we will make such judgments as exams approach based on class performance to that point in the semester. Further, we will not accept late problem sets (at all) unless you are physically unable to complete the assignment or have a family emergency. If you know that you will be out of town, it is your responsibility to make arrangements to turn the problem set in to me by the specified due date. If a problem set isn't accepted, you receive no credit for it. The same goes for missed exams.

Finally, a note on participation. This course relies heavily on learning by doing, which involves occasional work on the chalkboard in front of your colleagues. No one is exempt, and we will do our best to ensure that opportunities to work problems in front of the class are frequent and as equally distributed as possible. Refusal to participate in this fashion will hurt your grade, as well as your ability to perform well on the exams, so the best way to handle this is to simply be prepared.

University and Campus Policies

1. Students with disabilities.

Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259, <http://www.utexas.edu/diversity/ddce/ssd/>

2. Accommodations for religious holidays.

By university policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

3. Academic dishonesty.

"Scholastic dishonesty...includes, but is not limited to, cheating, plagiarism, collusion, falsifying academic records, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without prior permission of the instructor, providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment), or the attempt to commit such an act" (Section 11-802 (b), *Institutional Rules on Student Services and Activities*).

If you have any questions about what constitutes scholastic dishonesty, you should consult with me and [this website](#). Any student that violates this policy will fail this course and have the details of the violation reported to Student Judicial Services.

4. Emergency evacuation policy.

In the event of a fire or other emergency, it may be necessary to evacuate a building rapidly. Upon the activation of a fire alarm or the announcement of an emergency in a university building, all occupants of the building are required to evacuate and assemble outside. Once evacuated, no one may re-enter the building without instruction to do so from the Austin Fire Department, University of Texas at Austin Police Department, or Fire Prevention Services office.

Students should familiarize themselves with all the exit doors of each room and building they occupy at the university, and should remember that the nearest exit routes may not be the same as the way they typically enter buildings.

Students requiring assistance in evacuation shall inform their instructors in writing during the first week of class. Faculty members must then provide this information to the Fire Prevention Services office by fax (512-232-2759), with "Attn. Mr. Roosevelt Easley" written in the subject line.

Information regarding emergency evacuation routes and emergency procedures can be found at <http://www.utexas.edu/emergency>.

Readings

Two books are required:

- Osborne, Martin J. 2004. *An Introduction to Game Theory*. New York: Oxford University Press.
- Clarke, Kevin A. and David M. Primo. 2012. *A Model Discipline: Political Science and the Logic of Representations*. New York: Oxford University Press.

Two books are optional:

- Thomson, William. 2011. *A Guide for the Young Economist* Cambridge: MIT Press.
- Gill, Jeff. 2006. *Essential Mathematics for Political and Social Sciences*. New York: Cambridge University Press.

All other readings will be available electronically. I also expect that you will have completed the readings before the sessions for which they are assigned. Falling behind in this course is never, ever easily overcome.

Course Outline and Schedule

Session 1 (15 January). *Introduction*

Required Readings:

- Wagner, R. Harrison. 2001. "Who's Afraid of Rational Choice Theory?" [\[Link\]](#)
- Clarke and Primo, *A Model Discipline*.

Recommended:

- Diermeier, Daniel. 1995. "Rational Choice and the Role of Theory in Political Science." *Critical Review* 9:59-70.
- Cox, Gary. 1999. "The Empirical Content of Rational Choice Theory." *Journal of Theoretical Politics* 11(2): 147-169.
- Quackenbush, Stephen L. 2004. "The Rationality of Rational Choice Theory." *International Interactions* 30:87-107.

Session 2 (21 January). *The Theory of Choice*

- Osborne, Chapter 1

Session 3 (28 January). *Nash Equilibrium I*

- Osborne, Chapter 2

Session 4 (4 February). *Nash Equilibrium I*

- Osborne, Chapter 3

Session 5 (11 February). *Mixed Strategy Equilibrium*

- Osborne, Chapter 4

Session 6 (18 February). *Bayesian Games in the Normal Form*

- Osborne, Chapter 9

Session 7 (25 February). *Midterm review*

We will review and synthesize previous topics in the course, primarily Nash and Bayesian Nash Equilibrium, revisiting homework questions and examples from the text as necessary. The midterm format will be discussed in this session as well.

Session 8 (4 March). *First midterm exam due or administered*

Session 9 (11 March). *Games in the extensive form I*

- Osborne, Chapter 5

Session 10 (25 March). *Games in the extensive form II*

- Osborne, Chapter 6 & 7

Session 11 (1 April). *Repeated games I*

- Osborne, Chapter 14

Session 12 (8 April). *Repeated games II*

- Osborne, Chapter 15

Session 13 (15 April). *Games in the extensive form III*

- Osborne, Chapter 10

Session 14 (22 April). *Application: Bargaining*

We will bring to bear the logic of dynamic games, Bayesian games, and repeated games to a particular context—bargaining—that has wide application across political science.

Session 15 (29 April). *Research presentations*