## **GOV 385N: Introduction to Formal Political Analysis**

University of Texas at Austin, Spring 2013 Wednesday 930a-1230p, Batts Hall 5.102 Updated: January 8, 2013

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# **Course Description and Objectives**

The purpose of this course is to develop a consumer's knowledge of game theory in political science. The basis of this knowledge will be an understanding of the role of theory in social scientific inquiry; the relationship between assumptions, logic, and predictions; and the implications of strategic behavior for political outcomes. We will focus primarily on noncooperative game theory, including the concepts of Nash equilibrium, subgame perfection and other equilibrium refinements, repeated and infinite-horizon games, and games of incomplete and imperfect information. Sessions will involve first presenting game theoretic techniques and then applying them to specific political questions. Readings will consist of chapters in the assigned books and by scholarly articles.

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 in the process of taking the course. However, this does *not* mean that you should divide up the problems. If you do not spend time at least struggling with the exercise, 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, 4 March
- 30% final exam, date TBA
- 15% paper proposal, due 8 May
- 30% **homeworks**, mostly weekly

I reserve the right to add additional quizzes if I 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; I will make such judgments as exams approach based on class performance to that point in the semester. Further, I will not accept late homeworks unless you are physically unable to complete the assignment (and that's a big hurdle to clear) 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 homework in to me by the specified due date. If a homework isn't accepted, you receive a zero 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 I will do my best to ensure that opportunities to work problems in front of the class are frequent and equally distributed. 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 the following website: http://deanofstudents.utexas.edu/sjs/academicintegrity.html. 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 PoliceDepartment, 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 for the course, both of which are available at the co-op:

- Osborne, Martin J. 2004. *An Introduction to Game Theory* New York: Oxford University Press.
- Clarke, Kevin, and David Primo. 2011. *A Model Discipline* New York: Oxford University Press.

I also recommend (and have made available at the co-op) William Thomson's *A Guide for the Young Economist* (2011, MIT Press). It's not required, but I strongly, strongly recommend not only that you read it (whether or not you plan to use formal theory in your research) but that you do so as early in your graduate career as possible. 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.

### **Course Outline and Schedule**

**Session 1** (16 January). *Introduction* 

#### Readings

- Wagner, R. Harrison. 2001. "Who's Afraid of Rational Choice Theory?" [Link]
- Diermeier, Daniel. 1995. "Rational Choice and the Role of Theory in Political Science." *Critical Review* 9:59-70.
- Quackenbush, Stephen L. 2004. "The Rationality of Rational Choice Theory." *International Interactions* 30:87-107.

Session 2 (23 January). The Theory of Choice

### Readings

• Osborne, Chapter 1

**Session 3** (30 January). *Nash Equilibrium I* 

### Readings

• Osborne, Chapter 2

Session 4 (6 February). Nash Equilibrium II

### Readings

• Osborne, Chapter 3

Session 5 (13 February). Mixed Strategy Equilibrium

### Readings

• Osborne, Chapter 4

Session 6 (20 February). Bayesian Games

## Readings

• Osborne, Chapter 9

Session 7 (27 February). 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 (6 March). Midterm due or administered

**Session 9** (20 March). Extensive Form Games I

#### Readings

• Osborne, Chapter 5

Session 10 (27 March). Extensive Form Games II

#### Readings

• Osborne, Chapters 6 & 7

Session 11 (3 April). Extensive Form Games III

## **Readings**

• Osborne, Chapter 10

Session 12 (10 April). Repeated Games I

# Readings

• Osborne, Chapter 14

Session 13 (17 April). Repeated Games II

# Readings

• Osborne, Chapter 15

Session 14 (24 April). Bargaining

## Readings

• Osborne, Chapter 16

**Session 15** (1 May). The role of models in the social sciences

# Readings

• Clarke and Primo, whole book

Final Exam. TBA