

POL 196E: Research Methods Seminar: Game Theory  
Spring 2004  
Thursday 12:10pm-3:00pm  
273 Social Sciences Building

James Fowler, 1265 Social Science, 2-1649  
Office Hours: Thursday 9am-12pm, or by appointment  
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### **Course description**

This course provides elementary training in game theory in order to understand its applications to political science and recent innovations in the approach to modeling human behavior. Students will be expected to conduct original research in their final paper by either A) creating a formal model (analytic or computational) to analyze a political or individual choice problem or B) conducting and reporting the results of an experiment designed to elicit information about individual decision making.

If you plan to take this class you should feel comfortable with algebra. Students with substantial training in math or computer programming are also welcome. The course will be designed as much as possible to allow students to learn at their own pace and pursue their own research.

### **Required texts**

The texts we will use for this class are:

Dixit, Avinash and Susan Skeath. 1999. *Games of Strategy*. New York: Norton  
Camerer, Colin. 2003. *Behavioral Game Theory*. Princeton: Princeton.

The books should be available at the University book store, but they can be acquired online much more cheaply. (Try <http://addall.com> for a comparison of multiple new and used book stores).

### **Requirements**

Your evaluation will depend on your understanding of basic game theory and your ability to apply it to a research project of your choice. Your grade for this course will consist of six parts:

#### **1. Participation**

With the exception of our first course meeting, you should plan to do all of the readings prior to the class for which they are assigned. Failure to do this will make the seminar boring and useless for everyone. Well-prepared students will get full credit on the participation portion of their grade.

## 2. Weekly Assignments

You are encouraged to work with other people in the class on the weekly assigned problems. These will not be graded, but you should be prepared to show your classmates how to answer the problems assigned in the previous week. I will call on at least one person each week when an assignment is due, and your response will determine your assignment grade. Don't be nervous about this—I will be evaluating your effort more than your ability to get everything just right.

## 3. Topic Paper

A one page description of the topic for your final paper is due **January 22nd**. You must also print out and turn in the abstracts of the five most-cited articles relevant to your topic from the Social Science Citation Index (<http://isi3.newisiknowledge.com/portal.cgi/wos>). The following week I will have extra office hours so I can discuss your projects with each of you individually.

## 4. Model/Experiment Paper

A one page description of the model or experiment you will use for your paper is due **February 19th**. Preferably, you will use some math and notation for clarity, but I will also accept non-mathematical descriptions of your model. The following week I will have extra office hours so I can discuss your projects with each of you individually.

## 5. Presentation

You will present your final paper to the class on **March 11th**—you need not have your final paper completed by then, but you must have enough of it done that you can present the logic of the model you are using in your final paper. Feel free to use overhead slides or powerpoint or other more creative ways of making your point.

## 6. Final Paper

For your paper, I would like you to apply game theory to a political science problem that interests you. Remember that political science applies not only to large units like national governments, but also much smaller units like city councils, fraternities, and sororities. You may also choose to write about *individual* political behavior such as an individual decision to vote or contribute money to a cause.

Each paper should be about 5000 to 6000 words (include the word count on your first page) and should include a game, the solution to the game (based either on either traditional or behavioral game theory assumptions), and a description of how the game applies to your topic. You may also choose to conduct and report the results of an experiment related to game theory predictions. Feel free to be creative. Your paper will be graded on how well you apply game theory, how clear your explanation is, and how interesting your analysis is. A hardcopy of your paper is due in my box in the Political Science Department by **4pm on March 19<sup>th</sup>**.

## **Grades**

You will be graded on each of the requirements and your final grade will be weighted as follows:

1. Participation in class (10 percent)
2. Weekly assignments (10 percent)
3. One page topic paper (10 percent)
4. One page model paper (10 percent)
5. Presentation (20 percent)
6. Final Paper (20 percent)
7. Your choice (20 percent) -- You may choose how to apportion the final 20% of your grade between your presentation and your paper (e.g. 40% presentation, 20% paper; 20% presentation, 40% paper; 30% presentation, 30% paper; and so on). At our first meeting in office hours you must tell me how to apportion your grade.

I will not give incompletes. Late papers will be marked down half a grade for each 24 hour period it is late (an A becomes an A-, an A- becomes a B+, and so on). I will only make an exception to this policy if 1) you contact me in writing a week in advance to discuss a conflict, or 2) you provide documentation of a severe illness or family emergency that prevented you from completing the assignment on time.

## **Tentative Schedule**

### **January 8<sup>th</sup> Introduction**

Dixit and Skeath, Chapters 1 and 2  
Camerer, Chapter 1 (the appendix is optional)

Assigned problems: Dixit and Skeath 2.1, 2.2, 2.3, 2.4, 2.5

### **January 15<sup>th</sup> Sequential and Normal Games**

Dixit and Skeath, Chapter 3 and 4

Assigned problems: Dixit and Skeath 3.1, 3.2, 3.6, 3.7, 4.1, 4.2, 4.6, 4.11

### **January 22<sup>nd</sup> Dictator, Ultimatum, and Trust Games**

*Due: One page topic description with abstracts*

Dixit and Skeath, Appendix to Chapter 5  
Camerer, Chapter 2

Assigned problems: Handout 1: Expected Utility

### **January 29<sup>th</sup> Mixed Strategies**

Dixit and Skeath, Chapter 5  
Camerer, Chapter 3

Assigned problems: Dixit and Skeath 5.1, 5.3, 5.4, 5.7

### **February 5<sup>th</sup> Bargaining**

Dixit and Skeath, Chapter 16  
Camerer, Chapter 4

Assigned problems: Handout 2: Bargaining

### **February 12<sup>th</sup> Dominance-Solvable and Repeated Games**

Dixit and Skeath, Chapter 8  
Camerer, Chapter 5

Assigned problems: Handout 3: Repeated Games

**February 19<sup>th</sup> Learning**

*Due: One page description of the model/experiment you will use in your paper*

Camerer, Chapter 6

Assigned problems: Handout 4: Bayes' Rule

**February 26<sup>th</sup> Signaling and Reputation**

Dixit and Skeath, Chapter 12

Camerer, Chapter 8

Assigned problems: Dixit and Skeath 12.1, 12.3, 12.5

**March 4<sup>th</sup> Coordination**

Camerer, Chapter 7

No Assigned problems.

**March 11<sup>th</sup> Presentations**