Summer Studies

**Special Studies in Comparative in Comparative Governments and Politics**
**GAME THEORY FOR POLITICAL SCIENCE**
Political Science 4340, May Term 2013
M–F: XX:XX–XX:XX, Location TBA
Web page: http://course.smu.edu

Professor Hiroki Takeuchi
Department of Political Science
Office: 211 Carr Collins
E-mail: htakeuch@smu.edu

Office hours:

## Course Description

Politics is about conflict—what happens when people disagree about how society should be organized, what government policies should be, where borders belong, who gets to be leader. When there is conflict, there will be strategy. People on one side of an issue will do what they can to bring about the outcome that they want most. In doing so, they will strategically anticipate the actions of their opponents, who themselves are trying to anticipate the actions of the first group. In a strategic situation, I am trying to outwit you, knowing that you're trying to outwit me, knowing that I'm trying to outwit you…etc. Things get complicated.

In this class, we will learn a framework for understanding these complicated strategic interactions. The framework is game theory, which was developed by applied mathematicians in the mid-20$^{th}$ century. The movie, *A Beautiful Mind*, which won the Oscar for the best picture a few years ago, tells us the story of John Nash, one of game theory's founders. "He saw the world in a way no one had ever imagined," according to the posters. This is an exaggeration, but it is true that game theory induces a different way of looking at problems.

This course is an introduction to game theory as used in political science. Upon successful completion of this course, students will be able to:

(1) perform technical game theory analyses of well-defined situations, and to translate some important political conflict into a well-defined game, as a professional political scientist would; and
(2) apply game theory ideas informally to conflict situations, in a way that is relevant to life more broadly.

We will not be concerned here with the mathematical theorems that are at the foundation of game theory. (There are courses in the mathematics and economics departments along these lines, for those who are interested.) Rather, our focus will be on using game theory to understand politics and political strategy.

Please return completed form to Kathy Rowe, Director of Summer Studies at krowe@smu.edu or Summer Studies Office, 218 Blanton no later than February 15, 2012.

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**Course Requirements**
Grades will be based on an in-class midterm examination (30%), an in-class final examination (40%), six homework assignments (20%), and attendance and participation (10%). The final examination is cumulative.

**Textbooks**
The following book is available for purchase at the bookstore.

Avinash K. Dixit, David Reiley, and Susan Skeath (DRS), *Games of Strategy*, third edition (New York: W.W. Norton & Company, 2009).

**Homework Assignments:** There will be six homework assignments, handed out at the end of most of the lectures and due at the beginning of the following lecture (see the schedule for exact dates). The homework exercises will give you practice using the basic concepts of game theory and applying them to political problems. These problems are similar to those that will be on the midterm and the final.

**Study Groups:** Many students find it very helpful to form study groups to discuss examples from lectures and books, and to work on problem sets. It is fine to discuss problem sets with other students, but you must write up your answers alone. If you simply copy the homework assignment of another student, you risk getting a zero score for yourself and the person whom you copied from, and you will miss the overall point of the homework, which is to prepare for the exams that are a large part of your grade.

**Schedule**

**1. Introduction (May 16)**
DRS, chapters 1-2

**2. Sequential Move Games (May 17)**
DRS, chapter 3

**3. Simultaneous Move Games (May 20)**
DRS, chapter 4
*Homework #1 Due*

**4. Mixed Strategy (May 21)**
DRS chapter 5
*Homework #2 Due*

**5. Review (May 22)**
*Homework #3 Due*
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**6. IN-CLASS MIDTERM (May 23)**
Movie: *A Beautiful Mind*

**7. Games with Incomplete Information (May 24)**
DRS, chapter 6

**8. Repeated Games (May 28)**
DRS, chapter 8
*Homework #4 Due*

**9. Voting and Arrow's Theorem (May 29)**
DRS, chapter 14
*Homework #5 Due*

**10. Review (May 30)**
*Homework #6 Due*

**11. IN-CLASS FINAL (May 31)**
Movie: "Catch Me If You Can"

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