Course description
Politics is about strategic interaction. When political actors make choices about voting for a candidate, running for office, passing a law, or going to war, they usually take into account the likely responses and actions of others. This course introduces formal theory as a technique for analyzing strategic interactions. The basic principles of decision theory and game theory are covered, and you will learn how to predict the outcome of simple games. Mathematical topics covered include probabilities, set theory, summation notation and infinite series, linear equations, and quadratic equations. The games are motivated and illustrated with examples drawn from politics. The logic of strategic interaction and techniques of game theory developed in this class also have wide applications to other fields and your own everyday life.

Required texts
The texts we will use for this class are:

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 formal theory and your ability to apply it to problems in political science. Your grade for this course will depend on four components:
1. Attendance and 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. While this component is not graded, experience shows that it is highly correlated with exam performance. Some lecture topics will be in addition to material in the texts.

2. Problem Sets (45%)
Three problem sets will be due October 19th, November 14th, and November 30th. Problem sets are the heart of this course. The only way you can learn formal theory is to practice it. You are encouraged to work with other people in the class on the problem sets (write the names of the people you work with at the top of your paper).

3. Midterm Exam (15%)
This will be a short answer and essay question exam in class on November 2nd.

4. Final Exam (40%)
This will be a cumulative in-class final exam 11:30 a.m. – 2:30 p.m on December 5th.

Policies
I will only give incompletes or PTAs for compelling, unanticipated, and nonacademic reasons. Late assignments will be marked down the equivalent of a full letter grade for each 24 hour period in which they are late (one hour late = -1 letter, 25 hours late = -2 letters, 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

Sept 21st, 26th, 28th Rationality, Decision Theory, and Elements of Games
Dixit and Skeath, Chapters 1, 2, 7 (appendix pp.221-228)
Shepsle & Bonchek, Chapters 1 and 2

Oct 3rd, 5th Sequential Games and Subgame Perfect Equilibrium
Dixit and Skeath, Chapter 3

No class Oct 12th
Oct 10th, 17th  Simultaneous Games and Nash Equilibrium
Dixit and Skeath, Chapter 4 & 5

Problem Set 1 due Oct. 19th
D&S Ch 2.1, 2.3, 2.4; 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 4.5

Oct. 19th, 24th  Group Choice, Spatial Models, and Majority Rule
Shepsle & Bonchek, Chapters 3, 4
Dixit and Skeath, Chapter 15

Oct 26th, 31st  Voting Methods and Electoral Systems
Shepsle & Bonchek, Chapters 5, 7

Nov 2nd  Midterm Exam

Nov 7th  Combination Games and Strategic Moves
Dixit and Skeath, Chapter 6 & 10
Shepsle & Bonchek, Chapters 6

Problem Set 2 due Nov. 14th
D&S 15.1, 15.2, 15.3, 15.4, 15.5, 15.8; 10.1, 10.3; 6.1, 6.3

Nov 9th, 14th  Mixed Strategies
Dixit and Skeath, Chapter 7 & 8

No class Nov. 21st (Thanksgiving week holiday)

Nov 16th  Bargaining
Dixit and Skeath, Chapter 17
Shepsle & Bonchek, Chapters 11, 12, 13

Problem Set 3 due Nov. 30th
D&S 7.1, 7.3, 7.4, 7.5; 8.1, 8.4, 8.5; 17.2, 17.6

Nov 28th, 30th  Cooperation, Collective Action Games, and Conclusion
Dixit and Skeath, Chapter 12
Shepsle & Bonchek, Chapters 8, 9, 10