POLS 541: Game Theory Seminar
Spring 2010
Christopher K. Butler, Associate Professor

Contact Information:

Class Meetings: Tuesdays and Thursdays from 2:00 to 3:15 in 107 Mitchell Hall
Instructor's Office: SSCI 2051
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Office Hours: Tuesdays and Thursdays from 11:00 AM to 12:30 PM, and by appointment.
Class web page: www.unm.edu/~ckbutler/ps541

Overview:

The purpose of this class is for students to explore and understand the applicability of game theory in their substantive areas of study. To this end, we will begin with the nuts and bolts of strategic thinking: Nash equilibrium (for game matrices) and subgame perfect equilibrium (for game trees). We will then examine expected utility theory, mixed strategies, incomplete information, and repeated games (cf. evolutionary game theory). We will then go through applications of game models that are in the students' substantive areas of study. The class specifically examines game theoretic models in political science, but graduate students from other departments are welcome. A tolerance for mathematical reasoning is expected; the ability to do basic algebra is necessary.

Required Book:

Straffin, Philip D. 1993. *Game Theory and Strategy*. Washington, DC: The Mathematical Association of America.

Bibliography of Required Articles, Manuscripts, and Chapter Selections:

Binmore, Ken. **1992**. *Fun and Games: A Text on Game Theory*. Lexington, MA: D. C. Heath.

Black, Duncan **1948**. "On the Rationale of Group Decision-making." *The Journal of Political Economy* 56(1): 23-34.

Bueno de Mesquita, Bruce. **1990**. "Pride of Place: The Origins of German Hegemony." *World Politics* 43(1): 28-52.

Bueno de Mesquita, Bruce, and David Lalman. 1992. ***War and Reason***. New Haven: Yale University Press.

Butler, Christopher K. **2004**. "Endogenizing Conflict Initiation: Flinching and Fighting at Global High Noon" *Journal of Peace Research* 41(1): 47–63.

Butler, Christopher K. **2007**. "Prospect Theory and Coercive Bargaining." *Journal of Conflict Resolution* 51(2): 227-250.

Butler, Christopher K. and Scott **Gates**. **nd**. "Communal Violence and Property Rights."

Laver, Michael. **1997**. *Private Desires, Political Action: An Invitation to the Politics of Rational Choice*. London: Sage Publications. Chapters 3 and 6.

Morrow, James D. **1994**. *Game Theory for Political Scientists*. Princeton: Princeton University Press.

Nash, John F., Jr. **1950**. "The Bargaining Problem." *Econometrica* 18(2): 155-162.

Olson, Mancur. **1965**. *The Logic of Collective Action: Public Goods and The Theory of Groups*. Cambridge, MA: Harvard University Press.

Riker, William H. **1986**. *The Art of Political Manipulation*. New Haven: Yale University Press.

Rubinstein, Ariel. **1982**. "Perfect Equilibrium in a Bargaining Model." *Econometrica*, Vol. 50, No. 1. (Jan., 1982), pp. 97-110.

Assignments and Responsibilities:

The first part of the class will be structured lecture so that the students learn the basics of rational choice and game theory. Homework assignments are designed to make sure each student understands each aspect as introduced. Individual assignments will not be graded but will be corrected to show where a student went wrong; students are then encouraged to do similar problems until they understand that topic. *Failure to turn in assignments, however, will result in a lower class grade*. The exam will evaluate how well the student understands the basic tools introduced in this first half.

The second part of the class will focus on applications of rational choice and game theory. We will begin with political applications selected by the instructor and then move into applications the students are working on for their modeling paper. The student will then present their model in class, working through the math. This in-class demonstration should be viewed as a learning experience, that is, not for a grade. The feedback provided by the instructor and your classmates should be incorporated into your modeling paper. Presentations should be between 15 and 30 minutes long.

In addition, each student is required to write a paper that demonstrates his or her ability to construct a rational choice model. The starting point for this paper (in consultation with the instructor) can either be an original ideal or a non-formal rational choice argument in published research heretofore un-formalized. In either case, the paper will be written in phases. The first phase is the Decision Problem which should non-formally address—at length—what the decision problem is to be analyzed before formalizing the problem into a model. The Model Draft, incorporating a revision of your Decision Problem, will then present and solve your model and its solution should be discussed, *referring explicitly to the substance of the decision problem*. The student's presentation is another opportunity to get feedback on the model draft. Extensions of one class period will be granted on the writing assignments *only if requested*.

Attendance is mandatory for all classes.

Exam	50%
Modeling Paper	35%
Attendance & Participation	15%
Deductions for not doing homework assignments on time. Deduction for not doing a presentation on your modeling paper.	

Americans with Disabilities Act:

Qualified students with disabilities needing appropriate academic adjustments should contact me as soon as possible to ensure your needs are met in a timely manner. Handouts are available in alternative accessible formats upon request.

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Tuesday	Topic	Reading
Jan 19	Ordinal Preferences	
Jan 26*	Ordinal Preferences and Game Trees	Straffin 7, 33
Feb 2	Mixed strategies	Straffin 3
Feb 9	Collective Action Problems	Olson 1965 ch. 1; Laver 1997 ch. 3
Feb 16	Game Trees; Matrices as Trees **DUE: Decision Problem**	
Feb 23*	Nash Bargaining	Nash 1950
Mar 2	Rubinstein Bargaining	Straffin 16; Rubinstein 1982
Mar 9	Agenda Setting and Strategic Voting	Straffin 20; Riker 1986, chs. 7 & 3
Mar 16	*No class (Spring Break)*	
Mar 23*	Catch up	
Mar 30	International Interaction Game, set up	Bueno de Mesquita 1990
Apr 6	The Demand Initiation Game	Butler 2004
Apr 13	Conflict Success Functions	Butler and Gates nd
Apr 20	Presentations	
Apr 27	*No class (Conference)*	
May 4	Presentations	
May 11	**DUE: Final Paper**	

Thursday	Topic	Reading
Jan 21	Ordinal Preferences and Game Matrices	Straffin 1-2
Jan 28	Expected Utility	Straffin 9-10
Feb 4	Nash Equilibria and N-Person Games in Matrix Form	Straffin 11, 19
Feb 11	The Iterated Prisoner's Dilemma	Straffin 12
Feb 18	*No class (Conference)*	
Feb 25	Sequential games with uncertainty	Morrow 1994 pp. 161-187
Mar 4	Signaling games	Binmore 1992 pp. 501-511
Mar 11	Spatial Models and the Median Voter Theorem	Black 1948
Mar 18	*No class (Spring Break)*	
Mar 25	Catch up **DUE: Model Draft**	
Apr 1	International Interaction Game, insights	Selections from *War and Reason*
Apr 8	N-player DIG **DUE: Exam**	
Apr 15	Prospect Theory and Coercive Bargaining	Butler 2007
Apr 22	Presentations	
Apr 29	*No class (Conference)*	
May 6	Presentations	

* Class ends early due to Faculty Senate meeting.