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# Applied Game Theory

Fall 2016  
M 8:15–9:45, T 13:30-15:00  
F0429 (M), G0530 (T)

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**DESCRIPTION:** This course is designed for students who know the fundamentals of game theory and seek to understand how to create and analyze game theoretical models for theory-building. The goal is to familiarize students with the practical aspects of modeling various substantive ideas by exposing the advantages and limitations of mathematical formalization. This is best achieved by focused study of the modeling enterprise in selected areas of inquiry where we shall identify the fundamental problem that is being studied and how various models have tried to resolve it. The emphasis here will necessarily be on International Relations because this is the area I am most familiar with but also because it offers sharply defined problems with multiple papers engaged with each other in progressive development of the ideas. Throughout the course we shall analyze game theoretic papers: how the models are constructed, why the authors have made particular modeling decisions, how the results are presented, and how robust the conclusions are. Formal modeling is not a mindless application of cookie-cutter recipes. There is a lot of creativity in constructing the models and skill in interpreting their implications. This means that we need to engage the papers in depth, which limits the number we can deal with in any given week. Do not be misled by the small number of papers we will read: you will find yourself spending a lot of time trying to understand them.

**REQUIREMENTS:** There are three requirements for this course: weekly presentations of articles (30%), participation (20%), and a written assignment (50%). Each student will be responsible for presenting and critiquing the articles he or she will be assigned during our organizational meeting. The presentation will consist of (i) a summary of the article's main points, (ii) a careful exposition of the proofs and the intuition behind them, (iii) an evaluation of the substantive importance of the contribution, and (iv) a critique of the paper. Overheads are not required. Students should email me their summaries (either in PDF or Microsoft Word formats) at least 48 hours before the meeting so I can post them on the course web site for others to download and read. Everyone will be expected to have read the articles and the summaries before coming to class. Presenters must be prepared to lead discussion, which means that they should identify the broad themes underlying the reading, establish links to other literatures, suggest improvements for flaws in modeling or research design, derive testable hypotheses, and have ideas about their empirical testing. These will form the starting point for class discussion and other students will be expected to contribute actively.

The written assignment will be *either* a referee report for an article that has not been discussed in class, *or* an original formal model created by the student. Each student who opts to write the referee report must get my approval for the article. Each student who opts to write a formal model must get my approval for the topic. Although I will not require students to complete the analysis of the formal model they write, I will ensure that it is a feasible model that can, in fact, be solved within a reasonable time-frame. Both assignments are due on the last day of class.

## **SCHEDULE:**

### OCT 24: RATIONAL CHOICE AND GAME THEORY

- Walt, Stephen. 1999. "Rigor or Rigor Mortis? Rational Choice and Security Studies." *International Security*, 23(4): 5–48.
- Powell, Robert. 1999. "The Modeling Enterprise and Security Studies," *International Security*, 24(2): 97–106.
- Johnson, James. 1996. "How Not To Criticize Rational Choice Theory: The Pathologies of Commonsense." *Philosophy of the Social Sciences*, 26(1): 77–91.
- Clarke, Kevin A., and David M. Primo. 2007. "Modernizing Political Science: A Model-Based Approach." *Perspectives on Politics*, 5(4): 741–753.
- Rubinstein, Ariel. 1991. "Comments on the Interpretation of Game Theory." *Econometrica*, 59(4): 909–924.
- Johnson, James. 2010. "What Rationality Assumption? Or, How 'Positive Political Theory' Rests on a Mistake." *Political Studies*, 58(2): 282–299.

### OCT 25: BARGAINING AND THE INEFFICIENT USE OF POWER

- Fearon, James D. 1995. "Rationalist Explanations for War." *International Organization*, 49(Summer): 379–414.

### OCT 31: INCOMPLETE INFORMATION EXPLANATIONS

- Powell, Robert. 1999. *In The Shadow of Power*, Chapter 3. Princeton: Princeton University Press.
- Leventoglu, Bahar, and Ahmer Tarar. 2008. "Does Private Information Lead to Delay or War in Crisis Bargaining?" *International Studies Quarterly*, 52: 533–553.
- Slantchev, Branislav L. 2003b. "The Principle of Convergence in Wartime Negotiations." *American Political Science Review*, 47(4): 621–632.

### NOV 1: CREDIBLE COMMITMENT EXPLANATIONS

- Powell, Robert. 2006. "War as a Commitment Problem." *International Organization*, 60(Winter): 169–203.
- Leventoglu, Bahar, and Branislav L. Slantchev. 2007. "The Armed Peace: A Punctuated Equilibrium Theory of War." *American Journal of Political Science*, 51(4): 755–771.

NOV 7: INEFFICIENT PEACE EXPLANATIONS

- Slantchev, Branislav L. 2012. "Borrowed Power: Debt Finance and the Resort to Arms." *American Political Science Review*, 106(4): 787–809.
- Coe, Andrew J. 2011. "Costly Peace: A New Rationalist Explanation for War." Working paper, Department of Political Science, University of Southern California.

NOV 8: CRISIS BARGAINING AND ESCALATION

- Banks, Jeffrey S. 1990. "Equilibrium Behavior in Crisis Bargaining Games." *American Journal of Political Science*, 34(3): 599–614.
- Fey, Mark, and Kristopher W. Ramsay. 2010. "Uncertainty and Incentives in Crisis Bargaining: Game-Free Analysis of International Conflict." *American Journal of Political Science*, 55(1): 149–169.

NOV 14: SIGNALING AND COMMITMENT

- Fearon, James. 1997. "Signaling Foreign Policy Interests: Tying Hands versus Sinking Costs." *Journal of Conflict Resolution*, 41(1): 68–90.
- Slantchev, Branislav L. 2005. "Military Coercion in Interstate Crises." *American Political Science Review*, 99(4): 533–547.

NOV 15: INCENTIVES TO SIGNAL STRENGTH

- Slantchev, Branislav L. 2010. "Feigning Weakness." *International Organization*, 64(3): 357–388.
- Lindsey, David A. 2015. "Military Strategy, Private Information, and War." *International Studies Quarterly*, 59(4): 629–640.

NOV 21: CONVEYING RESOLVE

- Fearon, James D. 1994. "Domestic Political Audiences and the Escalation of International Disputes," *American Political Science Review*, 88(September): 577–92.
- Schultz, Kenneth. 1998. "Domestic Opposition and Signaling in International Crises." *American Political Science Review*, 92: 829–44.
- Kurizaki, Shuhei. 2007. "Efficient Secrecy: Public versus Private Threats in Crisis Diplomacy." *American Political Science Review*, 101(3): 543–558.

NOV 22: COURSE RECAP & CONCLUSIONS