POLI 279: Game Theory II
Fall 2012

Thursday 12:00–2:50pm
Social Science Building 104

Professor Salvatore Nunnari
Office: Social Science Building 325
Office Hours: By appointment
Email: snunnari@ucsd.edu

Course Website: http://polisci2.ucsd.edu/snunnari/poli279.html

Overview: This graduate course is a continuation of Game Theory I, POLI 204C, and covers advanced topics in game theory. Covered topics will include (but not be limited to) dynamic games of incomplete information, repeated games, and behavioral game theory. Emphasis will be placed on advanced equilibrium concepts and applications of interest to political scientists. If time permits, we will also discuss empirical evidence from laboratory experiments.

Readings: This course is primarily taught from lecture notes. Most lecture notes will be organized around the corresponding chapters in the McCarty and Meirowitz (MCM) textbook, but we will discuss topics MCM do not cover. If you plan to be a formal theorist, I strongly encourage you to acquire the optional textbooks to supplement MCM and the lecture notes.

Primary Textbook:

- *Political Game Theory*, by Nolan McCarty and Adam Meirowitz (MCM)

Additional Textbooks:

- *Game Theory*, by Drew Fudenberg and Jean Tirole (FT)
- *Game Theory: Analysis of Conflict*, by Roger Myerson (M)
- *Repeated Games and Reputations: Long-Run Relationships*, by George Mailath and Larry Samuelson (MS)
- *Behavioral Game Theory*, by Colin Camerer (CC)
- *A Behavioral Theory of Elections*, by Jonathan Bendor, Daniel Diermeier, David A. Siegel, and Michael M. Ting (BDST)

Course Requirements: There will be four problem sets (one every other week). All solutions will be posted on the website. You are free to discuss the problems with your colleagues, but you are required to turn in your individual

problem sets, and you are expected to come up with your own solutions (that is, you are not allowed to show written work to each other). Your final grade will be determined by weighting the problem sets (40%) and a final exam (60%). The final exam will be a 24 hours take-home. You will be allowed to consult your notes only. You will not be allowed to discuss the problems on the final exam with any of your colleagues or consult any other resources, including, but not limited to material available online. Please do not use laptop computers, tablets or phones during class.

COURSE OUTLINE

The course will be chronologically organized around the following topics. Specific dates for the readings, the HWs, and the final will be discussed in class.

1. **Dynamic Games of Incomplete Information**

   - Review of Extensive Form Games
   - Perfect Bayesian Equilibrium
   - Signaling Games and Cheap Talk
   - Refinements of Perfect Bayesian Equilibrium
   - Applications: Entry Deterrence in Elections; Information and Legislative Organization; Informational Lobbying

   Readings: MCM Chapter 8; FT 319-331, 367-386, 446-460

   Krehbiel (1986), "Sophisticated and Myopic Behavior in Legislative Committees: An Experimental Study," American Journal of Political Science 30:542-561, http://www.jstor.org/stable/2111089

2. **Finitely and Infinitely Repeated Games**

   - The Repeated Prisoner's Dilemma
   - The Folk Theorem
   - Repeated Games with Two Long-Run Players
   - Applications: Interethnic Cooperation; Trade Wars

   Readings: MCM Chapter 9; FT 145-165; M Chapter 7; MS Chapters 2-4, 17

   Kreps, Milgrom, Roberts and Wilson (1982), "Rational Cooperation in the Finitely Repeated Prisoners' Dilemma," Journal of Economic Theory, 27:245-252 http://www.sciencedirect.com/science/article/pii/0022053182900291

   Andreoni, and Miller (1993), "Rational Cooperation in the Finitely Repeated Prisoner's Dilemma: Experimental Evidence," Economic Journal, 103:570-585 http://www.jstor.org/stable/2234532

Dal Bò P. (2005), "Cooperation under the Shadow of the Future: Experimental Evidence from Infinitely Repeated Games," American Economic Review 95:1591-1604 http://www.jstor.org/stable/4132766

3. **Stochastic Games and Markov Perfect Equilibrium**

   - Markov Strategies and Markov Perfect Equilibrium
   - Applications: Repeated Prisoner's Dilemma; Transition to Democracy

   Readings: FT 13.1-13.2

   Maskin and Tirole (2001), "Markov Perfect Equilibrium: I. Observable Actions," Journal of Economic Theory 100:191-219 http://www.sciencedirect.com/science/article/pii/S0022053100927856

   Acemoglu (2012), "A Review of Dynamic Games", Chapter 3 in *Political Economy Lecture Notes*, Unpublished Manuscript, MIT Department of Economics http://economics.mit.edu/files/7625

   Acemoglu and Robinson (2001), "A Theory of Political Transitions," American Economic Review 91:938-963 http://www.jstor.org/stable/2677820

   Vespa (2012), "Cooperation in Dynamic Games: An Experimental Investigation", Unpublished Manuscript, UCSB Department of Economics http://www.econ.ucsb.edu/about_us/events/seminar_papers/vespa.pdf

4. **Behavioral Game Theory**

   - Theoretical Models of Limited Strategic Thinking: Quantal Response Equilibrium; Level-k and Cognitive Hierarchy Models; Cursed Thinking
   - Learning: Reinforcement Learning and Aspiration-Based Adaptive Rules
   - Application: The Paradox of Voter Participation

   Readings: CC Chapters 1, 5, and 6; BDST Chapters 2 and 4

   Camerer, Ho, and Chong (2004), "A Cognitive Hierarchy Model of Games," Quarterly Journal of Economics 119:861-898: especially Sections I-III, VI http://www.jstor.org/stable/25098704

   Eyster and Rabin (2005), "Cursed Equilibrium," Econometrica, 73:1623-1672 http://www.jstor.org/stable/3598885

   Goeree, Holt, and Palfrey (2008), "Quantal Response Equilibrium," in *The New Palgrave Dictionary of Economics*, Palgrave Macmillan, Basingstoke http://www.hss.caltech.edu/~jkg/QRE%20Palgrave.pdf

   Levine and Palfrey (2007), "The Paradox of Voter Participation? A Laboratory Study," American Political Science Review, 101:143-158 http://wc.wustl.edu/files/wc/Levine2007.pdf

Crawford, Costa-Gomes, and Iriberri (in press), "Structural Models of Nonequilibrium Strategic Thinking: Theory, Evidence, and Applications," Journal of Economic Literature http://weber.ucsd.edu/~vcrawfor/CGCIJEL4April12

5. **Bargaining Theory**

   - Bargaining Solutions and Fair Divisions
   - Non-Cooperative Bargaining
   - Applications: Veto Bargaining; Crisis Bargaining

   Readings: MCM Chapter 10; M Chapter 8; CC Chapter 4

   Fréchette, Kagel, and Lehrer (2003), "Bargaining in Legislatures: An Experimental Investigation of Open versus Closed Amendment Rules," American Political Science Review, 97:221-232 http://www.jstor.org/stable/3118205

6. **Mechanism Design and Agency Theory**

   - The Mechanism Design Problem
   - Auction Theory
   - Applications: Polling; Electoral Contests and All Pay Auctions

   Readings: MCM Chapter 11; FT Chapter 7

   Gneezy and Smorodinsky (2006), "All-Pay Auctions—An Experimental Study", Journal of Economic Behavior and Organization, 61:255-275 http://rady.ucsd.edu/faculty/directory/gneezy/pub/docs/all-pay-auctions.pdf