

Game Theory Applications to Political Science Master in Social Sciences Juan March - Carlos III Institute

Wednesday 10:30am to 13:30pm INF-15.S.01

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Course Description This course is a graduate-level class in applied game theory with the objective of preparing students for incorporating and understanding formal models in the fields of political economy and positive political science, regardless of substantive subfield. While the class provides ex- amples derived from American Politics, International Relations, and Comparative Politics, each application considered is sufficiently generalizable to be applied to many different areas in political science, and classroom discussion will also focus on potential bridges between subfields.

There are no required textbooks for the course, as the class is primarily paper-driven, and the text chapters we will read will be uploaded to Aula Global. I have identified several “recommended” texts that can serve as useful references throughout the semester. These texts might be of interest (and aid) to class participants, and generally might prove useful to own as future reference sources. The reading list that follows is a tentative collection of papers that will be analyzed over the course of the semester. The syllabus indicates what days each paper will be covered in class, and students are expected to read the assigned paper(s) prior to attending class on the days they will be analyzed.¹

It is assumed that students entering this class have a solid grasp of fundamental concepts of game theory, such as strategy sets, utility functions, Nash equilibrium, etc. Knowledge of basic calculus is also helpful. Each class session will involve a discussion of the substantive problem being addressed by a collection of theoretic works, with an in-depth analysis of at least one paper that engages a particular substantive question and/or methodological approach. However, please do not be afraid to ask me (or each other) for help. Everyone struggles with some of this material, including your professor, so there is no shame in admitting you are confused. What is important is that we work together to resolve that confusion as best we can as early as possible.

For each session and each article, I will designate one student to lead a critical discussion

¹I reserve the right to modify this syllabus as needed. I am also happy to adjust to account for student preferences.

- essentially this will be an introduction to the motivation and mechanics of the paper and lead into our discussion as a class. Discussion leaders will be chosen on a volunteer basis; you will be chosen at random, if no one volunteers. There is no penalty in our discussions for giving a wrong answer. This is instead an exercise in training you to read game theoretic papers, and to ensure you grasp the major takeaway points.

Grading and Expectations Students will be graded on three elements:

Participation: (30%): This is a graduate level seminar and participation is an essential component of satisfactory completion of the course. This is not a lecture – the course will be conducted such that students will be expected to ask and answer questions regarding the readings in each class to drive our discussions.

Response Papers: (30%): Each student will be required to write response papers for three of the papers in the course. Students must describe the core aspect of the theoretical debate and identify shortcomings in the theoretical discussion and modeling choices. Two pages maximum.

Research paper (40%): Each student is expected to write a research paper related to the topics covered in the course. The paper must identify a research question, describe the state of the literature, and craft a formal model that speaks to the question. Students will present the research paper to the class in the final week. 15 pages maximum.

Suggested Texts Austen-Smith, David, and Jeffrey S. Banks. 1999. *Positive Political Theory I: Collective Preference*. Ann Arbor: University of Michigan Press.

Fudenberg, Drew, and Jean Tirole. 1991. *Game Theory*. Cambridge, MA: MIT Press. Gibbons, Robert. 1992. *Game Theory for Applied Economists*. Princeton, NJ: Princeton University Press.

Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green. 1995. *Microeconomic Theory*. New York: Oxford University Press.

McCarty, Nolan, and Adam Meirowitz. 2007. *Political Game Theory: An Introduction*. New York: Cambridge University Press.

Ghelbach, Scott. 2013. *Formal Models of Domestic Politics*. Cambridge: Cambridge University Press.

Tentative Course Outline The weekly coverage might change as it depends on the progress of the class. These readings should be completed before the class.

Week Content

Week 1

- Organizational Meeting and Refresher
- McCarty and Meirowitz: Chapters 2, “The Theory of Choice”, and 3, “Choice Under Uncertainty”

Week 2

- Democracy and Dictatorship
- Acemoglu, Daron, and James A. Robinson. Economic origins of dictatorship and democracy. Cambridge University Press, 2005: Chapters 4, “Democratic Politics”, and 5, “Nondemocratic Politics”

Week 3

- Legislative Bargaining
- McCarty and Meirowitz: Chapter 9, “Repeated Games”, pp 251-263, and Chapter 10, “Bargaining Theory”
- Baron, David. and John Ferejohn. 1989. “Bargaining in Legislatures.” American Political Science Review. 83 (December): 1181-1206.
- Baron, David P. 1991. “Majoritarian Incentives, Pork Barrel Programs, and Procedural Control.” American Journal of Political Science. 34: 57-90.

Week 4

- Elections
- Austen-Smith, David, and Jonathan Banks. 1988. “Elections, Coalitions, and Legislative Outcomes.” American Political Science Review. 82 (June): 405- 422.
- Ferejohn, John. 1986. “Incumbent Performance and Electoral Control.” Public Choice. 50: 5-25.
- Fearon, James. 1999. “Electoral Accountability and the Control of Politicians: Selecting Good Types versus Sanctioning Poor Performance.” in Democracy, Accountability, and Representation.

Week 5

- Political Parties
- Krehbiel, Keith. 1993. “Where’s the Party?” British Journal of Political Science 23(2): 235-266.
- Snyder, James M., Jr., and Michael M. Ting. 2002. “An Informational Rationale for Political Parties.” American Journal of Political Science. 46 (1): 90-110.

Week Content

Week 6

- Signaling
- Fearon, James. 1994. "Signaling Foreign Policy Interests: Tying Hands versus Sinking Costs." *Journal of Conflict Resolution*, 41(1), 68-90.
- Schultz, Kenneth. 1998. "Domestic opposition and signaling in international crises." *American Political Science Review*, 92(4), 829-844.
- Lohmann, Susanne. 1993. "A signaling model of informative and manipulative political action." *American Political Science Review* 87.2: 319-333.
- Ginkel, John, and Alastair Smith. 1999. "So you say you want a revolution: A game theoretic explanation of revolution in repressive regimes." *Journal of Conflict Resolution* 43.3: 291-316.

Week 7

- Coordination
- Dewan, Torun and David Myatt. 2008. "The Qualities of Leadership: Direction, Communication, and Obfuscation." *American Political science review*, 102(3), 351-368.
- Bueno de Mesquita, Ethan. 2011. "Regime Change and Revolutionary Entrepreneurs." *American Political Science Review*, 104(3), 446-466.
- Little, Andrew. 2012. "Elections, Fraud, and Election Monitoring in the Shadow of Revolution." *Quarterly Journal of Political Science*, 7(3), 249-283.

Week 8

- Bargaining and War
- Fearon, James D. "Rationalist Explanations for War." *International Organization* 49/3 (Summer 1995), pp. 379-414.
- Powell, Robert. "Bargaining and Learning While Fighting." *American Journal of Political Science* 2004. 48(2):344-61.
- Fey, Mark and Kris Ramsay 2011. "Uncertainty and Incentives in Crisis Bargaining." *American Journal of Political Science*
- Reed, William. "Information, power, and war." *American Political Science Review* 97.4 (2003): 633-641.

Week 9

- Two Level Games
- Putnam, Robert D. "Diplomacy and domestic politics: the logic of two-level games." *International organization* 42.3 (1988): 427-460.
- Jackson, Matthew and Massimo Morelli. 2007. "Political Bias and War." *American Economic Review*, 97(4), 1353-1373.

- Ramsay, Kris. 2004. "Politics at the Water's Edge: Crisis bargaining and electoral competition." *Journal of Conflict Resolution* 48.4 (2004): 459-486.
- Smith, Alastair. 1998. "International Crises and Domestic Politics." *American Political Science Review*, 92(3), 623-638.

Week Content

Week 10

- Building Institutions

- Voeten, Erik, 2001. "Outside options and the logic of Security Council action." *American Political Science Review*, 95(4): 845-858.

- Milner, Helen and B. Peter Rosendorff 2001. "The Optimal Design of International Trade Institutions: Uncertainty and escape." *International Organization* 55.4 (2001): 829-857.

- Schneider, Gerald and Lars-Erik Cederman. 1994. "The change of tide in political cooperation: a limited information model of European integration." *International Organization* 48.4 (1994): 633-662.

Week 11

- Models and Empirical Testing

- Fearon, James D. 1994. "Signaling versus the balance of power and interests: An empirical test of a crisis bargaining model." *Journal of Conflict Resolution* 38(2): 236-269.

- Reed, William. 2000. "A Unified Statistical Model of Conflict Onset and Escalation." *American Journal of Political Science*. 44(1): 84-93

- Signorino, Curtis S. 1999. "Strategic Interaction and the Statistical Analysis of International Conflict." *American Political Science Review*, 93(2), 279-297.

- Smith, Alastair. 1999. "Testing Theories of Strategic Choice: The Example of Crisis Escalation." *American Journal of Political Science*, 1254-1283.

Week 12 • In-class Presentations of Paper Projects