

Pols 8020: Introduction to Game Theory

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Course Purpose and Design:

Strategic concerns underpin social and political settings. As such, a basic understanding of strategic choices enhances one's understanding of our social and political environs. Appreciating strategic interactions also allows us, as social scientists, to assess data generating processes. That is, are the data that we evaluate "just there" or are they a product of individuals' *strategic* actions.

A foundation in game theory often leads to clearer hypotheses for empirical assessment.

Increasingly, game theoretic tools are used to assess normative implications related to issues stemming from distribution. That is, how does one divide a pie fairly. This course introduces fundamental concepts and tools for understanding basic game theory.

The formal analysis inherent to game theoretic methods is deductively structured and logically based. No advanced mathematical background is presumed for this course. Some set theory and calculus will be introduced but only as needed. For students with limited background in game theory, this course is a great introduction. Those students with some familiarity with game theoretic tools will have a chance to refine and extend those tools.

The course has three goals. Our first goal is to become comfortable with the basics. Our second goal is to understand the application of game theoretic tools to various settings. Our third goal is to begin the development of our own applications of the tools and techniques discussed. The careful application of formal work will be a prominent concern throughout the course.

Key Concepts Covered in the Course Include:

At the broadest level, we will introduce some social choice theory, cooperative game theory, and noncooperative game theory. Various equilibrium concepts will be introduced.

Reading Material:

The main text is Joel Watson's *Strategy: An Introduction to Game Theory, 3rd Edition*. Recommended selections will be drawn from McCarty and Meirowitz's (McCM) *Political Game Theory* and Gelbach's *Formal Models of Domestic Politics*. I will try to distribute pdfs of limited sections. Pdfs of some articles will also be available. Generally,

these articles apply game theoretic tools to specific social or political settings. Our discussion of the substance of the applications will be limited, and I will not vouch for the meaningfulness of substantive applications. Instead, for the articles, we will focus on the development of the game theoretic model.

Presentation Style:

I will use slides, but there will also be considerable board time.

Grading:

Grades are based on homework (@50%), a paper (@35%), and a final (@15%). The final is structured like a bigger homework.

Syllabus and Course Structure

This course has @15 days. The last few sessions will include student presentations. This syllabus is our best estimate of what we'll cover and when we'll cover it.

*** Know that I will revise this syllabus as the course proceeds.

Note: Watson's chapters are very short. The McCarty and Meirowitz (McCM) chapters are longer and more advanced. Gelbach is more conceptually oriented. Other reading assignments will be selected from the syllabus as we proceed.

Day 0: Introductions

Ainsworth. 2020. "Rational Choice Theory in Political Decision Making."
Oxford Research Encyclopedia of Politics.
<https://oxfordre.com/politics/view/10.1093/acrefore/9780190228637.01.0001/acrefore-9780190228637-e-1019?print=pdf>

Day 1: As with other tools for the social sciences, game theory characterizes people.

Characterizing People: An Introduction to Preferences & Utility

Watson Ch. 1

McCM Ch. 2

Mershon and Shvetsova. 2019. *Formal Modeling in Social Science*. Chapter 3.

Recommended:

Luce and Raiffa's *Games and Decisions* Ch. 2

Further Reading:

Rabin, Matthew. 1998. "Psychology and Economics." *Journal of Economic Literature* 36:11-46.

Druckman. 2001. "Using Credible Advice to Overcome Framing Effects." *Journal of Law, Economics, and Organization* 17:62-82.

Gneezy et al. 2003. Performance in Competitive Environments: Gender Differences. *Quarterly Journal of Economics* 118:1049-1074.

Gneezy et al. 2009. Gender Differences in Competition. *Econometrica* 77:1637-1664.

Kantack and Woon. 2015. Women Don't Run? Election Aversion and Candidate Entry. *American Journal of Political Science* 59:595-612.

Lacy. 2001. "Nonseparable Preferences in Survey Responses." *AJPS* 45:239-258.

Day 2: As a tool for the social sciences, game theory also characterizes interactions between people.

The Features of Social or Political Settings that Create a Game

Characterizing Choices and Outcomes for Extensive and Normal Form Game Forms

Watson Ch. 2, 3, 4, 5, & 14

Day 3: Game theory also characterizes the outcomes from interactions.

Equilibrium Concepts

Watson Ch. 4, 5, 6, 7, 9, 11, 12, & 15

McCM Ch. 5 & 7

Baye, Kovenock, de Vries. 1993. Rigging the Lobbying Process. *AER* 289-94.

Day 4:

Equilibrium Concepts, cont.ed

Watson Ch. 8, 9, 10, 11, 14, & 15

Gelbach Ch. 1

Day 5: Looking ahead to think back.

Applications with Subgame Perfection

Heller, William B. 2001. "Making Policy Stick: Why the Government Gets What It Wants in Multiparty Parliaments." *American Journal of Political Science* 45: 780-798.

Ingberman and Yao. 1991. "Presidential Commitment and the Veto." *American Journal of Political Science* 35:357-89.

Gailmard and Hammond. 2011. "Intercameral Bargaining and Intracameral Organization in Legislatures." *Journal of Politics* 73:535-546.

Ferejohn and Shipan. 1990. "Congressional Influence on Bureaucracy." *Journal of Law Economics and Organization* 6:1-20.

Fong and Krehbiel. 2018. "Limited Obstruction." *APSR* 112:1-14.

Monroe, Patty, and Penn. 2018. "What is Pivotal Politics (and What Else Can It Be)?" *JOP* xx:xx-xx.

Woon. 2008. "Bill Sponsorship in Congress: The Moderating Effect of Agenda Positions on Legislative Proposals." *JOP* 70:201-16.

Proksch & Slapin. 2012. "Institutional Foundations of Legislative Speech." *American Journal of Political Science* 56:520-37.

Day 6: Considering beliefs and the connections between beliefs and actions. Are all beliefs reasonable? Can any action be justified?

Perfect Bayes

Watson Ch. 24, 26, & 28

McCM Ch. 8

Stokes. 2005. "Perverse Accountability." *APSR* 99:315-325.

Day 7:

Introducing Signals

McCM Ch. 8

Cho and Kreps. 1987. "Signaling Games and Stable Equilibria." *Quarterly Journal of Economics* 102:179-221.

Kreps. 1989. "Out of Equilibrium Beliefs and Out of Equilibrium Behavior" in *The Economics of Missing Markets, Information, and Games*, ed. Frank Hahn. Oxford.

Rogers. 2001. "Information and Judicial Review." *American Journal of Political Science* 45:84-99.

Chakraborty and Harbaugh. 2014. Persuasive Puffery. *Marketing Science* 33, 3: 382-400.

Bohnet, Frey, Huck. 2001. "More Order with Less Law: On Contract Enforcement, Trust, and Crowding." *American Political Science Review* 95:131-144.

Gordon and Hafer. 2005. "Flexing Muscle: Corporate Political Expenditures as Signals to the Bureaucracy." *American Political Science Review* 99: 245 -261.

Ainsworth. 1993. "Regulating Lobbyists and Interest Group Influence." *Journal of Politics* 55:41-56.

Day 8:

Introducing Cooperative Game Theory and Bargaining Models

Luce and Raiffa's *Games and Decisions* Ch. 8, 9

Skim Ordeshook's *Game Theory and Political Theory* Ch. 7, 8, 9

With Guidance from "Accepted Principles:" The Nash Bargaining Solution

Watson Ch. 18

Luce and Raiffa's *Games and Decisions* Ch. 6

Another look at bargaining

Watson Ch. 19

Fearon. 1995. "Rationalist Explanations of War." *International Organization* 49:379-414.

Ainsworth and Flathman. 1995. "Unanimous Consent Agreements as Leadership Tools." *Legislative Studies Quarterly* 20:177-195.

Bohnet, Frey, Huck. 2001. "More Order with Less Law: On Contract Enforcement, Trust, and Crowding." *American Political Science Review* 95:131-144.

Day 9:

Social Choice Theory and Applications of Cooperative Games

McC&M, 4

Blau. 1972. "A Direct Proof of Arrow's Theorem." *Econometrica* 40:61 -67.

Gibbard. 1973. "Manipulation of Voting Schemes." *Econometrica* 41:587-601.

Weingast. 1979. "A Rational Choice Perspective on Congressional Norms." *American Journal of Political Science* 23:245-262.

Patty and Penn. 2014. *Social Choice and Legitimacy*. Part II. CUP.

Tsebelis. 1995. "Decision Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism and Multipartyism." *British Journal of Political Science* 25:289-325.

Day 10:

Simple Games to Re-Introduce Preferred to Sets and Win Sets

Bonneau, Hammond, Maltzman, Wahlbeck. 2007. "Agenda Control, the Median Justice, and the Majority Opinion on the U.S. Supreme Court." *American Journal of Political Science* 51:890-905.

Gelbach Ch. 4

Selections from Krehbiel. 1988. "Spatial Models of Legislative Choice." *Legislative Studies Quarterly* 13:259-319.

Days 11, 12, 13:

Overflow, catch-up days.

Student presentations

Day 14:

Repeated Games v. Dynamic Games

Watson Ch. 22

Axelrod. 1981. "The Emergence of Cooperation among Egoists." *American Political Science Review* 75:306-318.

Greif and Laitin. 2004. "A Theory of Endogenous Institutional Change." *American Political Science Review* 98:633-652.

Heller, William B. and Katri K. Sieberg. 2010. "Honor among thieves: Cooperation as a strategic response to functional unpleasantness." *European Journal of Political Science* 26:351-362.

Myerson. 2008. The Autocrat's Credibility Problem. *Amer Pol Science Review* 102:125-140.

Pierson. 2000. "Increasing Returns, Path Dependence, and the Study of Politics." *American Political Science Review* 94:251-267.

Selections from John Maynard Smith. *Evolution and the Theory of Games*.

By the end of this course, the following concepts will have been introduced.

backward induction, Bayes' theorem, beliefs, Cartesian product, cheap talk, complete information, cooperative game, core, coordination, directed graph, dominance, dominate, edge, extensive form game, focal point, imputation, incomplete information, information set, iterated dominance, intuitive criterion, mapping, mixed strategy, mixed strategy equilibrium, Nash Bargaining Solution (NBS), Nash equilibrium, nature, node (including initial & terminal), non-cooperative game, normal form game, pareto, perfect Bayes, player, pooling, preferred-to-sets, rationalizable, repeated game, separating, sequential rationality, strategic form game, strategy, subgame, subgame perfection, tree, types, utility, v-set, yolk, win sets, zero sum

Addendum

Groups and Group Identity

Gavious, Arieh and Shlomo Mizrah. 1999. Two-Level Collective Action and Group Identity.” *Journal of Theoretical Politics* 11(4): 497–517.

McBride, Michael. 2008. “Religious Pluralism and Religious Participation: A Game Theoretic Analysis.” *American Journal of Sociology* 114(1):77-106.

Penn. 2008. “Citizenship versus Ethnicity: The Role of Institutions in Shaping Identity Choice.” *JOP* 70(4).

Fads and Conformity

Bikhchandani, Hirshleifer, and Welch. 1998. “Learning from the Behavior of Others: Conformity, Fads, and Informational Cascades.” *Journal of Economic Perspectives* 12:151-70.

Bikhchandani, Hirshleifer, and Welch. 1992. “A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades.” *Journal of Political Economy* 100:992-1026.

Schelling. *Micromotives and Macrobehavior*.

Selection Issues

Akerlof. 1970. The Market for Lemons. *Quarterly Journal of Economics*.

Emergence of Institutions

Greif and Laitin. 2004. “A Theory of Endogenous Institutional Change.” *APSR* 98:633.

Pierson. 2000. Increasing Returns, Path Dependence, and the Study of Politics.” *APSR* 94:251-267.

Coase, Ronald H. 1960. “The Problem of Social Cost.” *Journal of Law and Economics* 3:1-44.

Gailmard. 2017. “Building a New Imperial State: The Strategic Foundations of Separation of Powers in America.” *APSR*

Alchian and Demsetz. 1972. “Production, Information Costs, and Economic Organization.” *AER* 62:777.

Acemoglu. 2003. “Why not a Political Coase Theorem?” *J of Comp Eco*

31:620-652.

Acemoglu and Robinson. 2013. "Economics versus Politics: Pitfalls of Policy Advice." *J of Econ Perspectives* 27:173-192.

Bednar and Page. 2018. "When Order Affects Performance: Culture, Behavioral Spillovers, and Institutional Path Dependence." *APSR* 112:82-98.

Stone. 2011. *Controlling Institutions: IOs and the Global Economy*.

Ainsworth. 1997. "Representation and Institutionalization." *Journal of Theoretical Politics* 9:147-65.

Sened. 1997. *The Political Institution of Private Property*. NY: Cambridge University Press.

Weingast. "The Political Foundations of Democracy and the Rule of Law." *APSR* 91:245-63.