MAPS 31803
Game Theory in Political Science and Policy Analysis
Spring Quarter 2024
T/Th 3:30-4:45 pm
Meeting Location: 1155 E 60th, 289A

Instructor: Dr. Juan Qian
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Course Description & Objectives

Game theory is the mathematical study of *strategic interactions among rational individuals*. In economic and political science, it is a mainstream tool to understand how individuals, organizations, and states make decisions, based on anticipated behaviors of others, with the aim of maximizing their interests. This is an introductory course that covers basic concepts and models in game theory and their applications in political science, public policy, and economics. This course is suitable for students who do not plan to use formal modeling as their primary research tool but wish to obtain a solid understanding of basic game theory concepts.

- This course is divided into two parts. The first part (5 weeks) introduces the "nuts and bolts" of game theory and discusses basic concepts in strategic games. We will explore the following questions: (1) How does a *strategy* differ from a mere *decision*? (2) What are the basic components of a game? (3) What constitutes a *solution set* in a game? We will then delve into several essential classes of games, including normal form games, extensive form games, repeated games, and games under incomplete information.

- The second part (4 weeks) introduces contemporary game-theoretic models used in political science and public policy. We will cover formal models in the following topics: (1) election and voting; (2) political selection; (3) collective action; (4) power-sharing dynamics in authoritarian regimes; (5) revolution and democratization; (6) information, propaganda, and censorship; (7) war, peace, and bargaining. Through the study of these models, we aim to gain insights into the underlying logic of politics using game theory.

Textbook
We will primarily use three textbooks for this course:
1. Martin J. Osborne. 2003. *An Introduction to Game Theory, 1st edition.* Oxford. (Hereafter "Osborne")
2. Scott Gehlbach. 2013. *Formal Models of Domestic Politics.* Cambridge. (Hereafter "Gehlbach")

Additional journal articles will be occasionally assigned. **Please be noted that it's not required to purchase these textbooks.** I will upload scanned chapters of those textbooks to Canvas.

Grading

There will be **five problem sets (10%×5)**, a **final exam (30%)**, and a **term paper (20%)**.

- **Problem sets** (due **April 2**, **April 9**, **April 16**, **April 30**, and **May 14**) will be uploaded **one week** before their respective due dates. Problem sets can either be handwritten (and scanned) or typed. If you prefer to submit a typed assignment, I strongly recommend using **LaTeX** for typesetting, which is much more efficient in typing math symbols and equations. A beginner's guide to LaTeX can be found here: https://www.overleaf.com/learn/latex/Free_online_introduction_to_LaTeX_(part_1)

- You will write **a term paper** (up to 10 pages, double-space) that summarizes the main ideas, arguments, and findings of a formal theory article in a peer-reviewed journal. In mid-April, I will provide a list of articles from which you can choose. In your term paper, you should include: (1) the research question of this paper; (2) a concise explanation of the formal model presented in the article; (3) your summary of the article's main theoretical contribution to social sciences.

- The **final exam** (exact date TBD) will be a close-book, 1.5 hour exam held during the final week. It will be cumulative and will cover all materials throughout the quarter. Sample questions will be given one week before the final exam.

Late Work Policy

- Please read and familiarize yourself with the syllabus and important due dates for the quarter. Students will be penalized **1/3 of a letter grade per day** for each day that an assignment is late. If you need an extension on an assignment, please email me in advance to discuss your reasons for such an accommodation.

Email Policy

- The easiest way to reach me outside of the classroom is by email. I will typically respond within 48 hours. If for some reason I have not, please send me a reminder **after 48 hours**.
- **I do not discuss grades over email.** If you want to discuss your grade, please schedule an appointment with me during my office hours.

Diversity, Inclusion, and Disability

- The University of Chicago believes that a culture of rigorous inquiry demands an environment where diverse perspectives, experiences, individuals, and ideas inform intellectual exchange and engagement. In line with this perspective, this course will explore challenging ideas, unfamiliar arguments, and ways of viewing the world that may differ markedly from our own. Our conversations, both in and out of the classroom, present an opportunity to interrogate our assumptions about the social sciences and each another. This will require an open mind, patience, and mutual respect.
- If at any point you are not treated with respect, or you have concerns about a conversation you have had or witnessed, please do not keep it to yourself. Please reach out to me directly. I also welcome your suggestions for how I might improve efforts to

foster an inclusive learning environment in which everyone feels welcome and treated equitably.

- This course is open to all students who meet the academic requirements for participation. Any student who has a documented need for accommodation should contact Student Disability Services (773-702-6000 or disabilities@uchicago.edu) and Juan as soon as possible.

Academic Honesty

- It is imperative that we all know how to distinguish between our own ideas and statements and those of others, particularly in presentation. You are expected to acknowledge the contributions of others in your work. If you have any questions about acceptable and unacceptable use of others' research and writings, please consult Charles Lipson's *Doing Honest Work in College* (University of Chicago Press, 2008), two chapters of which are in the Course Documents on Canvas, and/or contact your preceptor before submitting your work.

ChatGPT/Generative AI Use

- Students must give credit to AI tools whenever used, even if only to generate ideas rather than usable text. When using AI tools on writing assignments, **prepare an appendix** showing (a) the entire exchange, highlighting the most relevant sections; (b) a description of precisely which AI tools were used (e.g. ChatGPT, private subscription version), (c) an explanation of *how* the AI tools were used (e.g. to generate ideas, turns of phrase, elements of text, long stretches of text, lines of argument, pieces of evidence, maps of the conceptual territory, illustrations of key concepts, etc.); (d) an account of why AI tools were used (e.g. to save time, to surmount writer's block, to stimulate thinking, to handle mounting stress, to clarify prose, to translate text, to experiment for fun, etc.). Overall, AI tools should be used wisely and reflectively with an aim to deepen understanding of subject matter.

Module One: Basic Concepts in Game Theory

March 19: Introduction
- Reading: Osborne, Chapter 1 (introduction)

March 21: Components of a game; normal form games
- Reading: Osborne, Chapter 2

March 26: Normal form games; continuous strategies
- Reading: Osborne, Chapter 3

March 28: Continuous strategies; mixed Strategies
- Reading: Osborne, Chapter 4

April 2: Extensive Form Games
- Reading: Osborne, Chapter 5-6

April 4: Collective Actions
Reading:
- Avinash K. Dixit, Susan Skeath, and David McAdams. *Games of Strategy*, 5th edition. Chapter 11.
- Gehlbach, Chapter 7.1.

April 9: Repeated Games
- Reading: Osborne, Chapter 14

April 11: Games under Imperfect Information
- Reading: Osborne, Chapter 9-10

Module Two: Game Theoretic Models in Political Science and Public Policy

Topic 1: Models of Elections and Voting

April 16: Elections and Voting: the Basics

Required:
- Gehlbach, Chapter 1
- Dewan, Torun, and Kenneth A. Shepsle. "Political Economy Models of Elections." *Annual Review of Political Science* 14 (2011): 311-330.

Optional:
- Feddersen, Timothy J., Itai Sened, and Stephen G. Wright. "Rational Voting and candidate entry under plurality rule." *American Journal of Political Science* (1990): 1005-1016.
- Osborne, Martin J., and Al Slivinski. "A Model of Political Competition with Citizen-candidates." *The Quarterly Journal of Economics* 111, no. 1 (1996): 65-96.

April 18: Elections and Voting: Introducing Uncertainty

Required:
- Gehlbach, Chapter 2.1-2.2

Optional:
- Dixit, Avinash, and John Londregan. "The Determinants of Success of Special Interests in Redistributive Politics." *The Journal of Politics* 58, no. 4 (1996): 1132-1155.

Topic 2: Models of Coalition Building and Political Selection

April 23: Coalitions and Coalition-building

Required:
- Osborne, Chapter 8.1, 8.2 and 8.6
- Gehlbach, Chapter 6.1-6.2

Optional:

- Baron, David P., and Daniel Diermeier. "Elections, Governments, and Parliaments in Proportional Representation Systems." *The Quarterly Journal of Economics* 116, no. 3 (2001): 933-967.

April 25: The Selectorate Theory

Required:
- Gehlbach, Chapter 6.5
- Bueno De Mesquita, Bruce, Alastair Smith, Randolph M. Siverson, and James D. Morrow. *The Logic of Political Survival.* MIT press, 2005. Chapter 3.

Topic 3: Models of Elite Power-sharing and Bureaucratic Control

April 30: Elite Power-sharing

Required:
- Gehlbach, Chapter 7.2
- Svolik, Milan W. "Power Sharing and Leadership Dynamics in Authoritarian Regimes." *American Journal of Political Science* 53, no. 2 (2009): 477-494.
- Boix, Carles, and Milan W. Svolik. "The Foundations of Limited Authoritarian Government: Institutions, Commitment, and Power-sharing in Dictatorships." *Journal of Politics* 75, no. 2 (2013): 300-316.

Optional:
- Magaloni, Beatriz. "Credible Power-sharing and the Longevity of Authoritarian Rule." *Comparative Political Studies* 41, no. 4-5 (2008): 715-741.
- Paine, Jack. "The Dictator's Power-Sharing Dilemma: Countering Dual Outsider Threats." *American Journal of Political Science* 65, no. 2 (2021): 510-527.

May 2: Bureaucratic Control and the Loyalty-Competence Tradeoff

Required:
- Egorov, Georgy, and Konstantin Sonin. "Dictators and their Viziers: Endogenizing the Loyalty-Competence Tradeoff." *Journal of the European Economic Association* 9, no. 5 (2011): 903-930.
- Montagnes, B. Pablo, and Stephane Wolton. "Mass Purges: Top-Down Accountability in Autocracy." *American Political Science Review* 113, no. 4 (2019): 1045-1059.

Optional:
- Zakharov, Alexei V. "The Loyalty-Competence Trade-off in Dictatorships and Outside Options for Subordinates." *The Journal of Politics* 78, no. 2 (2016): 457-466.
- Tyson, Scott A. "The Agency Problem Underlying Repression." *The Journal of Politics* 80, no. 4 (2018): 1297-1310.

Topic 4: Models of Information Control:
Election Rigging, Propaganda, and Censorship

May 7: Models of Information Control

Required:
- Gehlbach, Scott, Konstantin Sonin, and Milan W. Svolik. "Formal models of nondemocratic politics." *Annual Review of Political Science* 19 (2016). (Please carefully read pages 575-578, and skim through the rest.)
- Rozenas, Arturas. *Forcing Consent: Information and Power in Non-Democratic Elections.* PhD Dissertation: Duke University (2012). Chapter 1.
- Gehlbach, Scott, and Konstantin Sonin. "Government Control of the Media." *Journal of Public Economics* 118 (2014): 163-171.

Optional:
- Luo, Zhaotian, and Arturas Rozenas, "Ruling the Ruling Coalition: Information Control and Authoritarian Power-Sharing", *Quarterly Journal of Political Science* 18 (2022): 183-213.

Topic 5: Models of Contentious Politics:
Ethnic Conflicts, Revolution, and Regime Change

May 9: Ethnic Conflicts and Assimilation

Required:
- Acharya, Avidit, David D. Laitin, and Anna Zhang. "'Sons of the Soil': A Model of Assimilation and Population Control." *Journal of Theoretical Politics* 30, no. 2 (2018): 184-223.
- Carvalho, Jean-Paul, and Mark Koyama. "Jewish Emancipation and Schism: Economic Development and Religious Change." *Journal of Comparative Economics* 44, no. 3 (2016): 562-584.

May 14: Revolution

Required:
- Gehlbach, Chapter 8.3 and 8.4.1.
- Acemoglu, Daron, and James A. Robinson. "Why Did the West Extend the Franchise? Democracy, Inequality, and Growth in Historical Perspective." *The Quarterly Journal of Economics* 115, no. 4 (2000): 1167-1199.

Optional:
- Lizzeri, Alessandro, and Nicola Persico. "Why did the Elites Extend the Suffrage? Democracy and the Scope of Government, with an Application to Britain's 'Age of Reform' " *The Quarterly Journal of Economics* 119, no. 2 (2004): 707-765.

May 16: Democratization and Democratic Backsliding

Required:
- Gehlbach, Chapter 8.4.2-8.4.4.

- Acemoglu, Daron, and James A. Robinson. "A Theory of Political Transitions." *American Economic Review* 91, no. 4 (2001): 938-963.

Optional:
- Zhaotian Luo and Adam Przeworski. "Democracy and its Vulnerabilities: Dynamics of Democratic Backsliding", *Quarterly Journal of Political Science* 18 (2023): 105-130.
- Chiopris, Caterina, Monika Nalepa, and Georg Vanberg. "A Wolf in Sheep's Clothing: Citizen Uncertainty and Democratic backsliding." Working Paper (2021).

Final paper due date: TBD

Final exam date: TBD