PSC 533: Formal Political Theory
Department of Political Science
University at Buffalo
Spring 2024

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Description:

This course provides an introduction to formal models in political scientists. Special attention is given to rational choice models, especially game-theoretic models, and the public choice literature. Throughout, the emphasis will be on the spirit of modeling rather than on proofs and specific modeling techniques.

Required Texts:

Michael E. Brown, Owen R. Coté, Jr., Sean M. Lynn-Jones, and Steven E. Miller, eds., *Rational Choice and Security Studies.* Cambridge, MA: MIT Press, 2000.

Mershon, Carol and Olga Shvetsova, *Formal Modeling in Political Science*. Ann Arbor, MI: University of Michigan Press, 2019.

James D. Morrow, *Game Theory for Political Scientists*, Princeton, NJ: Princeton University Press, 1994.

Philip Straffin, *Game Theory and Strategy*. Washington, DC: Mathematical Society of America, 1995.

Frank C. Zagare (2019), *Game Theory, Diplomatic History and Security Studies.* Oxford: Oxford University Press, 2019.

Recommended/Suggested:

Douglas G. Baird, Robert H. Gertner and Randal C. Picker, *Game Theory and the Law*. Harvard University Press, 1995.

Evelyn C. Fink, Scott Gates and Brian Humes, *Game Theory Topics: Incomplete Information, Repeated Games, and N-Player Games*. Thousand Oaks, CA: Sage, 1998.

Itzhak Gilboa, *Rational Choice*. Cambridge: MIT Press, 2010

Rebecca B. Morton. *Methods and Models: A Guide to the Empirical Analysis of Formal Models in Political Science*. New York: Cambridge University Press, 1999.

Frank C. Zagare and D. Marc Kilgour, *Perfect Deterrence*. New York: Cambridge University Press, 2000.

Requirements:

There will be two in-class examinations, based on the readings and the lectures. The dates will be announced in class. Each examination will count for 20% of the final grade.

All exams will be on-line. The examinations will require students to compose answers in MS Word (or pdf) format and submit these answers to UB Learns. Some responses will require a graphical answer which may be composed either by using Word's drawing tools or by drawing figures by hand and submitting them electronically. Students who are unable to answer these questions will not be able to complete the course successfully.

In addition, each student is expected to write a paper that either 1) develops, extends, or applies a game- or decision-theoretic model, or 2) explores in detail a more specialized topic directly related to the subject matter of the course. Some suggested topics may be given in class. Students are urged to approach this assignment from the vantage point of their particular research interests and future dissertation plans. The paper will count for 60% of the final grade. Papers handed in later than May 1, 2025 will not be graded.

There will also be some homework assignments and other small projects.. Students are expected to review all the lectures and complete all the homework assignments.

Learning Outcome	Assessment Measures:
Be able to identify, discuss, and apply key concepts and major approaches in game theory	Participation in class discussion Final exam
Demonstrate the ability to think theoretically about politics	Term Paper

Academic misconduct: Academic misconduct will not be tolerated in this course. A student with a documented case of plagiarism, cheating, or another form of academic dishonesty will receive the grade of "F" for the course and might face other disciplinary action under University regulations.

Students with disabilities policy: The Americans with Disabilities Act (ADA) is a federal stature that provides comprehensive civil rights protection for persons with disabilities. This legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring accommodation, please notify me immediately.

Intellectual Property: Course materials that I (Frank C. Zagare) have prepared, together with the content of all lectures and materials presented and prepared by me in this course are my intellectual property. Video, audio, and photographic recording of lectures is prohibited without my explicit permission. The selling or dissemination of exams, study guides, homework assignments and handouts is prohibited without my explicit permission. The selling or dissemination for commercial purposes of notes derived from my lectures is also prohibited without my explicit permission.

The following is a chronological list of topics and suggested readings for these topics.

I.   Introduction

Morrow, Chapter 1; pp. 16 – 22. Appendix One.
Baird *et al.*, Introduction (recommended)
Brown *et al.*, entire book
Morton, Chapters 1 – 3 (recommended)
Zagare, pp. 7 – 8
*"The Game Theorist"

II. Representing Games: The Extensive Form and Normal Form

Morrow, Chapter 3
Baird *et al.*, Chapters 1 and 2 (recommended)
*"Extensive Form of Asymmetric Escalation Game"
Homework: Morrow, Exercises 3.1, 3.2, 3.3, 3.4, and 3.5

III. Two-Person Zero-Sum Games

Morrow, pp. 73 – 91;
Homework: 2 and 3
Homework: Morrow, Exercises 4.3, 4.4, and 4.5

IV. Introduction to Utility Theory

Morrow, Chapter 2

V. Two-Person Nonzero-Sum Noncooperative Games

Morrow, pp. 91 – 111
Baird *et al.*, Chapters 4 – 6 (recommended)
Poundstone, entire book (recommended)
Homework: Morrow, Exercises 4.1, 4.2, and 4.6
*"Game Theory Wins a Nobel"

VI. Backward Induction and Subgame Perfection

Morrow, Chapter 5
Zagare, pp. 9 – 19, Chapters 2 and 8

VII. The Theory of Metagames and the Analysis of Options Technique

Zagare, pp. 61 – 75.
Michael C. Shupe et al., (1980). "Nationalization of the Suez Canal," *Journal of Conflict Resolution*, 24: 477-93.#
Straffin, pp. 76 – 78.

VIII. The Theory of Moves

Steven J. Brams, "Game Theory and the Cuban Missile Crisis," +*Plus Magazine*, Jan. 24, 2001.*
Frank C. Zagare "A Game-Theoretic Evaluation of the Cease-Fire Alert Decision of 1973," *Journal of Peace Research*, 20, number 1 (April 1983), pp. 73 · 86.#
Randall W. Stone "The Use and Abuse of Game Theory in International Relations: The Theory of Moves," *Journal of Conflict Resolution* 45 (April 2001): 216 – 44.#
Steven J. Brams "Response to Randall Stone: Heresy or Scientific Progress?" *Journal of Conflict Resolution* 45 (April 2001): 245 – 54.#
Zagare, pp. 75 – 78.

IX. Games with Incomplete Information

Morrow, Chapters 6 - 8
Zagare, pp. 19 – 24, 78 – 81, chapters 3 – 7.
Baird *et al*., Chapter 3 (recommended)
Fink, Gates and Humes, entire book (recommended)

X.   Introduction to N-person Games

Morrow, pp. 116 – 120

XI. Theory of Political Coalitions

S. M. Amadae and Bruce Bueno de Mesquita "The Rochester School: The Origins of Positive Political Theory." *American Review of Political Science*, 2: 269—95.*

XII. Conclusions

Morrow, Chapter 10

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\# = available at: http://www.jstor.org/
* = available at: http://www.acsu.buffalo.edu/~fczagare/GameTheoryHome.htm