

University of Rochester Political Science

PSC 408
Positive Political Theory

Prof. Mark Fey
Spring 2024

Syllabus

This course is part of a rigorous introduction to the main concepts and results in positive political theory. It is the second half of a two course sequence consisting of PSC 407 and PSC 408. The sequence concentrates on the theoretical models used in contemporary political science, and provides the mathematical background necessary to fully understand them.

The year-long sequence of PSC 407 and PSC 408 is designed to be both a rigorous foundation for students planning on taking further courses in the positive political theory field and a self-contained overview of the field for students who do not intend to do additional coursework in the field. This course will focus on the basics of game theory, which analyzes individual behavior in strategic situations. It will also cover the mathematical tools required to express the theory. Examples and applications will be drawn from several different areas in political science, including the American Congress, voting, international relations, political economy, and law.

Naturally, PSC 407 is the prerequisite for this course. Students should have a good working knowledge of the mathematical topics covered there.

Course Meetings: Lectures for the course will be Mondays and Wednesdays from 10:30–12:00 in Harkness 329.

Course Work: To learn this material, there is no substitute for solving problems. Therefore, problem sets will be assigned throughout the semester. There will also be a midterm and final exam. Your course grade will be based on your homework (20%), the midterm (40%) and the final (40%).

Course Readings: The main reference for the course is my lecture notes, which will be distributed via Blackboard. I will also make use of these books:

- Simon and Blume, *Mathematics for Economists*
- McCarty and Meirowitz, *Political Game Theory*
- Osborne, *An Introduction to Game Theory*

Schedule: Below is the list of topics and the scheduled readings for the course. Naturally, this schedule may change as the semester unfolds.

Topic 0 Overview and logistics of the course

Topic 1 **CONSTRAINED OPTIMIZATION**

local and global, first and second order necessary conditions, sufficient conditions, constrained optimization and Lagrange's method, comparative statics

- Simon and Blume, chs. 17–19, 21.5

Topic 2 **STRATEGIC FORM GAMES**

strict dominance, IEWDS, pure strategy Nash equilibrium, mixed strategies, zero-sum games, applications, continuous strategy spaces

- Osborne, chs. 2–4
- McCarty and Meierowitz, sec. 5.1–5.6

Topic 3 **EXTENSIVE FORM GAMES**

strategies in the extensive form, information sets, backward induction, subgame perfection, credible threats, sophisticated voting in agendas

- Osborne, chs. 5–7
- McCarty and Meierowitz, sec. 7.1–7.4

Topic 4 **APPLICATIONS**

Coordination Collective action, public goods, and cooperation

- Osborne, chs. 14–16
- McCarty and Meierowitz, sec. 5.7–5.9

Topic 5 **VOTING MODELS**

strategic voting, issue-by-issue, setter model

- McCarty and Meierowitz, sec. 7.5–7.8

Topic 6 **BARGAINING**

alternating offers, Nash bargaining

- McCarty and Meierowitz, ch. 10

- Ariel Rubinstein, “Perfect Equilibrium in a Bargaining Model,” *Econometrica*, 50:1 (1982) 97–110. (JSTOR)
- David Baron and John Ferejohn, “Bargaining in Legislatures,” *American Political Science Review*, 83 (1987) (JSTOR)
- John Nash, “The Bargaining Problem,” *Econometrica* 18:2 (1950) 155–162. (JSTOR)

Topic 7 REPEATED GAMES

- McCarty and Meirowitz, ch. 9

Topic 8 BAYESIAN GAMES

- McCarty and Meirowitz, chs. 6 and 8