

CALIFORNIA INSTITUTE OF TECHNOLOGY
Political Theory
SS202a

TTh 2:30-4:00
11 Downs, 269 Lauretson

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Introduction to Formal Political Theory

This course is an introduction to formal modelling in political science. We will cover the “social choice” approach to social decision-making, including Arrow’s impossibility theorem, Plott’s theorem on symmetry conditions at core points, and McKelvey’s theorem on majority cycles. We will then examine connections between the social choice approach and some game-theoretic analyses of politics.

There will be homework exercises and a final.

There are two books assigned for the class, and I will distribute a copy of a manuscript by Richard McKelvey.

- D. Austen-Smith and J. Banks, *Positive Political Theory I: Collective Preference*, 1999, Ann Arbor: University of Michigan Press
- R. McKelvey, “Social Choice,” 2000, manuscript
- P. Ordeshook, *Game Theory and Political Theory*, 1986, New York: Cambridge University Press.

The outline of the course is basically like this. Due to time constraints, however, we may be forced to cover one or more of these topics more hastily than we would like.

1. Preference and Choice

- Austen-Smith and Banks, Chapter 1
- McKelvey, Chapter 1
- Ordeshook, Sections 1.1-1.4

2. Majority Rule and Social Decision-making
 - Austen-Smith and Banks, Section 3.5 (this will be difficult to read until we've covered more material)
 - McKelvey, Chapter 2
3. Impossibility Theorems of Arrow, Gibbard, and Nakamura
 - J. Geanakoplos, "Three Brief Proofs of Arrow's Impossibility Theorem," Cowles Foundation Discussion Paper, no. 1123RRR, 2001
 - Austen-Smith and Banks, Chapters 2-3
 - McKelvey, Chapter 3
 - Ordeshook, Sections 2.1-2.2
4. The One-dimensional Spatial Model: Single-peakedness and Black's Theorem
 - Austen-Smith and Banks, Chapter 4
 - McKelvey, Section 5.4
 - Ordeshook, Section 4.6
5. The Finite Model: Solutions for Tournaments
 - H. Moulin, "Choosing from a Tournament," *Social Choice and Welfare*, 1986, 3:271-291, Sections 1-5
6. The Multidimensional Spatial Model: Instability, Chaos, and the Uncovered Set
 - Austen-Smith and Banks, Chapters 5 and 6
 - McKelvey, Chapters 5 and 6
 - Ordeshook, Sections 2.3 and 4.7
 - R. McKelvey, "Covering, Dominance, and Institution-free Properties of Social Choice," *American Journal of Political Science*, 1986, 30:283-314.
 - Ordeshook, Section 4.9
7. Downsian Elections, Nash Equilibrium, and Weak Dominance
 - Ordeshook, Sections 4.6-4.7

8. Manipulability of Voting Systems

- J.-P. Benoit, “The Gibbard-Satterthwaite Theorem: A Simple Proof,” *Economics Letters*, 2000, 69:319-322
- McKelvey, Chapter 4

9. Voting in Agendas

- H. Moulin, “Choosing from a Tournament,” *Social Choice and Welfare*, 1986, 3:271-291, Sections 6-7

10. Bargaining in Legislatures

- J. Banks and J. Duggan, “A Bargaining Model of Collective Decision-making,” *American Political Science Review*, 2000, 94:73-88
- D. Baron and J. Ferejohn, “Bargaining in Legislatures,” *American Political Science Review*, 1989, 83:1181-1206