

SS201a: Analytical Foundations of Social Science
Tu/Th 10:30-11:55, 315 Baxter
Christopher P. Chambers
Fall 2008

This course focuses on individual and collective decisions and choices. Main topics are: choice theory, decision theory, social choice theory.

There are four required texts for this course:

- D. Austen-Smith and J. Banks: “Positive Political Theory I: Collective Preference.”
- D. Kreps: “Notes on the Theory of Choice.”
- K. Arrow: “Social Choice and Individual Values.”
- L.J. Savage: “The Foundations of Statistics.”

The following book, while not required, will be very useful to have (for this class and others):

- H. Moulin: “Axioms of Cooperative Decision Making,” Chapters 9-11.

One of the main purposes of this course is to force students to become familiar and comfortable with rigorous mathematical arguments. Therefore, credit will derive from properly writing proofs: definitions, assumptions, and logical deductions should always be clearly stated and organized. The course takes a scientific perspective, discussing the empirical content of basic economic models as well as correctly interpreting economic theories.

Exercises will primarily follow the Kreps text and Austen-Smith and Banks text. However, there are results not in the books that you might need to know. Some of these will be listed below; others I will assign as they occur to me.

Each week I will assign homework. The homework assignments will contain questions from topics covered in class, as well as readings. You are allowed to work in groups, but everybody should hand in their own assignment. I will not accept late homework. If you have worked with others, please list the names of the other students you have worked with. I also ask you to please type your work using LaTeX or Scientific Workplace (this facilitates sharing of homework solutions). I fix one or more questions per week (unannounced ahead of time) to grade.

There will also be a final exam.

Below is a tentative list of readings. Due to time constraints, we will not get through the entire syllabus in class. I have put a (*) next to readings that might be considered “less important” and which I probably will not teach in

class but which may be helpful for homeworks, and which you may be interested in anyway.

Abstract choice theory and binary relations

- Austen-Smith & Banks, Chapter 1
- Kreps, Chapters 1-2.
- H. Moulin, "Choice functions over a finite set, a summary," *Social Choice and Welfare* **2** (1984), 147-160.
- M.K. Richter, "Revealed preference theory," *Econometrica* **34** (1966), 635-645.
- M.K. Richter, Rational choice, in *Preferences, Utility, and Demand*.

Single-agent choices (decisions) under certainty and uncertainty, utility representations

- Kreps, Chapters 3-6.
- Savage, Chapters 1-5.
- I. Gilboa and D. Schmeidler, "Maxmin expected utility with nonunique prior," *Journal of Mathematical Economics* **18** (1989), 141-153.

Abstract social choice, the binary model and classical results

- K. May, "A set of independent necessary and sufficient conditions for simple majority decision," *Econometrica* **20** (1952), 680-684.
- Austen-Smith & Banks, Chapter 2-3.
- K. Arrow, Social choice and individual values.
- Gibbard-Satterthwaite Theorem
- (*) D. McGarvey, "A theorem on the construction of voting paradoxes," *Econometrica* **21** (1953), 608-610.
- (*) A. Sen, "The impossibility of a Paretian liberal," *Journal of Political Economy* **78** (1970), 152-157.
- (*) R. Wilson, "Social choice theory without the Pareto principle," *Journal of Economic Theory* **5** (1972), 478-486.
- (*) A.P. Kirman and D. Sondermann, "Arrow's theorem, many agents, and invisible dictators," *Journal of Economic Theory* **5** (1972), 267-277.

- (*) J. Harsanyi, “Cardinal welfare, individualistic ethics, and interpersonal comparisons of utility,” *Journal of Political Economy* **63** (1955), 309-321.
- (*) B. De Meyer and P. Mongin, “A note on affine aggregation,” *Economics Letters* **47** (1995), 177-183.
- (*) J. Smith, “Aggregation of preferences with variable electorate,” *Econometrica* **41** (1973), 1027-1041.
- (*) P. Dasgupta and E. Maskin, “On the robustness of majority rule and unanimity rule,” working paper (2003).
- (*) G. Kalai, “Social indeterminacy,” *Econometrica* **72** (2004), 1565-1582.

Preference restrictions, spatial competition, and “resolving” impossibilities

- Austen-Smith and Banks, Chapters 4-5
- (*) H. Moulin, “On strategy-proofness and single-peakedness,” *Public Choice* **35** (1980), 437-455.

Cycles and chains in spatial models, “chaos” results, the topcycle and uncovered sets

- Austen-Smith and Banks, Chapter 6
- R. McKelvey, “Intransitivities in multidimensional voting models and some implications for agenda control,” *Journal of Economic Theory* **12** (1976), 472-482.
- H. Moulin, “Choosing from a tournament,” *Social Choice and Welfare* **3** (1986), 271-291.
- (*) R. McKelvey, “Covering, dominance, and institution-free properties of social choice,” *American Journal of Political Science* **24** (1986), 68-96.

Agendas and manipulation

- H. Moulin, “Choosing from a tournament,” *Social Choice and Welfare* **3** (1986), 271-291.