ICPSR Summer Program 2018

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Course description:

This course will provide you with a fairly rigorous introduction to the field of positive political theory. The field is loosely divided into two families (which are not always clearly distinct from each other): social choice theory and game theory. This course will focus solely on the former. We will also discuss the intersection of the two families, from which some interesting research is currently being produced.

Social choice theory takes a collection of individuals with well-defined and heterogeneous preferences as an input; it then examines the different ways in which we can construct a collective, or social, preference relation from these heterogeneous inputs. The construction is achieved through the use of a preference aggregation rule which could be equivalent to a voting rule, such as majority rule or unanimity rule, or something else entirely. The goal of social choice theory is to examine the properties of different types of these rules, and to characterize the rules that yield desirable outcomes. More generally speaking, the collection of “individual preferences” taken as an input can represent any collection of ways of ordering the set of alternatives under consideration. In this sense, the main theorems we will study speak not only to the difficulties in aggregating the preferences of individuals, but also to the difficulties in combining any collection of factors that we deem important to making a final decision.

Social choice theory has provided us with a rigorous way of analyzing what our voting systems are and aren’t capable of doing in a perfect world. I hope to convey to you the importance of this; the elegance and power of many social choice-theoretic results such as Arrow’s impossibility theorem, the McKelvey-Schofield chaos theorems, the Gibbard-Satterthwaite theorem, and the Plott conditions have changed the way that all political scientists think about politics (regardless of what some skeptics of “rational choice theory” claim). These results also distinguish formal political theory from economic theory, which often takes a “representative voter” or consumer as a given.

Social choice theory has fallen far behind game theory as a tool currently being used in economic and political science modeling, although there has been a resurgence in the field in recent years. I hope to give you an understanding of why this happened, and what the field is and isn’t capable of providing us with, as modelers. I also hope you will leave the class feeling excited about the material we’ve covered and interested in furthering the field.
Structure of the course and grading

The course material will be drawn mainly from the first four chapters of “Positive Political Theory I” and the first three chapters of “Positive Political Theory II” by Austen-Smith and Banks (AS&B). A few lectures will focus on articles that I will distribute or on material from other books. You may find the book “Social Choice and the Mathematics of Manipulation” by Alan Taylor to be a helpful complement to the second volume of AS&B. It covers the Gibbard-Satterthwaite theorem and its many extensions and uses very straightforward notation.

You’ll be graded on class participation, problem sets, two exams, and a presentation. The presentation may be solo or in a group, depending on our course enrollment. You will prepare a short memo to distribute to the class on a paper or topic of your choosing (from a list at the end of this syllabus, or you may choose a different paper / topic if you’re not inspired by the list). You will also give a short lecture to the class. The goal of this assignment is to get you to delve into a social choice-theoretic topic in depth, to teach your classmates (and me) about an important and well-known part of the field that I have not covered in lecture, and to have you to prepare a short but technical presentation that is clear and understandable to an audience unfamiliar with your topic. This last goal in particular is an important skill to learn!

“Workshop” days will be dedicated to catching up on any material I wasn’t able to get to in lecture and to working on your problem sets together. Depending on course enrollment, we will also use a few workshop days for your presentations. We will discuss the due dates for your problem sets in class. All problem sets must be typed, preferably in LTEX. You can work with your classmates on the problems but must turn in your own assignment. Our TA will let you know how she would like the problem sets turned in (whether paper or electronic copies).

JUN 26: INTRODUCTION, CHOICE & PREFERENCE
  - Reading: Ch. 1.1 & 1.2 of AS&B I.

JUN 27: RATIONALIZABLE CHOICE
  - Reading: Ch. 1.3, 1.4, 1.5, 1.6 of AS&B I

JUN 28: EXTENSIONS: CHOICE FROM TOURNAMENTS & CRITICISMS OF WARP

JUN 29: WORKSHOP
  - Homework: Problems 1.1, 1.2, 1.3 (a, b, c only), 1.6 of AS&B I.

JUL 2: PREFERENCE AGGREGATION AND ARROW
  - Reading: Ch. 2.1 & 2.2 of AS&B I.

JUL 3: EXTENSIONS OF ARROW: QUASITRANSITIVITY & ACYCLICITY
  - Reading: Ch. 2.3 & 2.4 of AS&B I; Sen, Collective Choice and Social Welfare (1970), Ch. 8.
JUL 5: SIMPLE RULES AND THE NAKAMURA NUMBER

- Reading: Ch. 3.1, 3.2, 3.3 of AS&B I.

JUL 6: WORKSHOP

- More extensions: k–nary independence, cardinal preferences
- Homework: Problems 2.3, 2.4, 2.5, 3.2, 3.3 of AS&B I.

JUL 9: EXAM 1 (OPEN BOOK)

JUL 10: VOTING & COUNTING RULES

- Reading: Ch. 3.4, 3.5, 3.6 of AS&B I.

JUL 11: DOMAIN RESTRICTIONS

- Reading: Ch. 4.1, 4.2, 4.3, 4.4 of AS&B I; Ballester & Haeringer, “A Characterization of the Single-Peaked Domain,” Social Choice and Welfare (2011); Ch. 2.4 of AS&B II.

JUL 12: THE SPATIAL MODEL, MAY’S THEOREM, & THE PLOTT CONDITIONS


JUL 13: STRATEGY-PROOFNESS AND SEN’S PARETIAN LIBERAL

- Reading: Ch. 2.1, 2.2, 2.3 of AS&B II; Sen, “The Impossibility of a Paretian Liberal,” Journal of Political Economy, (1970).

JUL 16: THE REVELATION PRINCIPLE AND NASH IMPLEMENTATION

- Reading: Ch. 3.1, 3.2, 3.3 of AS&B II.

JUL 17: WORKSHOP DAY

- Homework: Problems 3.7, 3.9, 4.1(b), 4.3 of AS&B I. Problems 2.1, 3.2, 3.3 of AS&B II.

JUL 18: STUDENT PRESENTATIONS

JUL 19: STUDENT PRESENTATIONS

JUL 20: EXAM 2 (OPEN BOOK)
POSSIBLE PRESENTATION PAPERS / TOPICS

- Apportionment Paradoxes and the Balinski-Young Theorem
  - Balinski & Young, *Fair Representation: Meeting the Ideal of One Man, One Vote*, Yale University Press, 1982.
- The Discursive Dilemma (Judgment Aggregation) and Deliberation
- Matching
- Networks, Clustering, “Big Data”
- Optimal voting schemes

- Behavioral choice theory

- Measures of welfare: Inequality, Polarization