Syllabus for PS 232B: Formal Models of Political Science, Fall 2021

Instructor: Andrew Little, 736 SSB, andrew.little@berkeley.edu

Location: Tuesday 1:00-3:00pm, 233 Dwinelle

Office Hours: By appointment

This is the second in a two course sequence that introduces graduate students in political science (and related fields) to game theory. I will assume students are comfortable with the material from the first semester (232A), though we will do some review as necessary.

The main goals of the class are to equip students to read contemporary work in a deeper fashion, and start to produce their own original models. While the majority of the class will be lecture-based and there will be some problem sets, the primary focus of the class will be reading papers carefully and producing a term paper using a formal model.

Requirements and Grading

Your grade will be determined as follows:

- Participation (10%)

- Presentation of other paper (10%)

- Midterm presentation of your project (10%)

- Problem sets (30%)

- Final paper/presentation (40%)

A primary purpose of the class is for students to develop a formal model. We will dedicate some class time in the middle of the semester for students to give short presentations (10-15 minutes) of a proposed idea and get feedback from each other. I expect you set up a meeting to discuss your project at least once before that presentation.

During the last class and/or our final exam slot, students will give longer presentations of their model/paper (30-40 minutes), which should be near completed at that point.

The paper will be due the last day of finals (December 17). The most important part of the paper is to have a model which you have solved (or at least solved enough to say something concrete and interesting). I don't expect a comprehensive introduction, literature review, or conclusion, but there should be enough before and after the model to say why it is new and interesting.

At one point in the semester, you will also present one of the papers we discuss in class. The presentation will be around 30-40 minutes (plus time for interruptions), roughly analogous to a more technical version of a seminar presentation/job talk. A few notes on the goals here:

- Minimize the "windup"; you should give a quick motivation for the paper but want to get to the model ASAP

- You should prioritize going through the main result(s) with some detail rather than superficially covering everything. If the proofs are very long you need not go through every detail, but should give a clear sense of the main steps of the argument.

- While you shouldn't gloss over any shortcomings of the paper, I also want you to get some practice in persuading audiences in the value of work, so you should primarily take the author's perspective. To do this properly you will need to read the model very carefully!

- You will see some examples of what I expect based on presentations I do in the first few weeks.

Format and Workload

We will meet for two hours a week, which is a bit light for a graduate methods class, but was much easier for scheduling reasons. Now that we are all used to various forms of recorded learning, I am planning to supplement our in-person class time with some short pre-recorded videos (likely 15-30 minutes, and not necessarily every week), covering some technical material that we will use in class. If you already know the underlying material, feel free to zip through, but if you don't yet know it please take your time and come to class with questions.

You'll also note that while there are some assigned articles for the class, their number and length is quite a bit shorter than what you would see in substantive classes. This is because I expect you to read them *carefully*. I don't just want you to get the gist of the paper, you should be aiming to understand the core mathematical steps underlying the main results. If you are struggling with a paper, come to class with concrete questions and we will work through it.

The Topics

The material for the first 8 weeks of the class or so is set, focusing on three kinds of models which have been particularly important and influential in the discipline, both in the past and current

"hot" topics. First we will cover signaling models and refinement of beliefs. Second we will study accountability/principal-agent models, which typically use a "career concerns" information structure not covered in 232A, and will also include some applications with incorrect belief formation. Third, we will study dynamic models and Markov Perfect Equilibrium, which is the most common way to analyze repeated interactions. Within all three, we will typically start with basic/canonical models, and then go through applications of the methods.

In terms of applications, there will be some flexibility in what we cover, and I'll send out a survey to get a sense of what papers look most interesting.

For the last few weeks, what we cover will be even more student-led. Some potential topics include:

- Electoral Competition

- Bargaining and Conflict

- Cheap talk and Mechanism Design

- Evolutionary Game Theory

- Incomplete information coordination (protests, revolutions)

- Bayesian Persuasion

- Identity and values

- Networks

- Game theory and experiments

- Testing formal models

Schedule

Week 1: Introduction, Lecture 1 on Signaling

Required

- Tadelis Chapter 17

- Robbert Gibbons, "Game Theory for Applied Economists", Chapter 4

Suggested:

- In-Koo Cho and David Kreps, 1987. "Signaling Games and Stable Equilibria"

Week 2: Signaling Applications

Potential Readings:

- James D. Fearon, 1994. "Signaling Foreign Policy Interests: Tying Hands versus Sinking Costs"

- Sanford C. Gordon and Catherine Hafer, 2005. "Flexing Muscle: Corporate Political Expenditures as Signals to the Bureaucracy"

- Lohmann, Susanne, 1993. "A Signaling Model of Informative and Manipulative Political Action"

- Ernesto Dal Bo and Robert Powell, 2009. "A Model of Spoils Politics"

- Sean Gailmard "Imperial Politics, English Law, and the Strategic Foundations of Constitutional Review in America"

Week 3: Accountability/Principal-Agent Models

- Scott Gehlbach, Formal Models of Domestic Politics, Chapter 7

Week 4: Canonical accountability models, Normal-Normal Learning

Math backgrounder on normal learning.

- James Fearon, 1999. "Electoral Accountability and the Control of Politicians: Selecting Good Types versus Sanctioning Poor Performance"

- Scott Ashworth, 2005. "Reputational Dynamics and Political Careers"

Week 5: Behavioral accountability models

Potential readings

- Ethan Bueno de Mesquita and Scott Ashworth, "Is Voter Rationality Good for Voters?"

- Andrew Little, Keith Schnakenberg, and Ian Turner, "Motivated Reasoning and Democratic Accountability"

- Benjamin Lockwood, "Confirmation Bias and Electoral Accountability"

- Gilat Levy and Ronnny Razin, "Correlation Neglect, Voting Behavior, and Information Aggregation"

Week 6: Dynamic Games/Markov Perfect Equilibrium

Math backgrounder on Bellman Equations
Readings: TBD

Week 7: Applications of Dynamic Games

Potential readings:

- Daron Acemoglu and James Robinson, 2000. "Why Did the West Extend the Franchise? Democracy, Inequality, and Growth in Historical Perspective"

- Bruce Bueno de Mesquita et. al., 2003. "The Logic of Political Survival." Chapter 3.

- Robert Powell, "The Inefficient Use of Power: Costly Conflict with Complete Information"

- Robert Powell, "Why some Persistent Problems Persist"

- Sean Gailmard, "Building a New Imperial State: The Strategic Foundations of Separation of Powers in America"

- Maggie Penn "A Model of Farsighted Voting"

Week 8: Dynamic Games Applications 2/Presentation of Proposals

See above

Week 9: Student selected topic 1

Week 10: Student selected topic 1: applications

Week 11: Student selected topic 2

Week 12: Student selected topic 2: applications

Week 13: Final presentations