POLITICAL SCIENCE 506: THEORIES OF INDIVIDUAL AND COLLECTIVE CHOICE II

Washington University
Department of Political Science
Spring 2022
Friday 2PM-3:50PM
Seigle 305

Instructor: Keith E. Schnakenberg
Email: keith.schnakenberg@gmail.com
Web: http://keith-schnakenberg.com/
Office Hours: by appointment
Seigle 241

This is the second course in the game theory sequence for political science doctoral students. The goals of the course are two-fold. First, the course will build on students' existing knowledge of game theory by teaching additional tools and concepts not covered in the first-semester game theory course. Second, the course will help students make the transition from consumers to producers of theoretical models by teaching applications in political science and having students produce an original theoretical model.

I do not ask you to buy a textbook for this course. I will mix and match readings from various sources and provide most textbook readings from Canvas. For your own reference some advanced texts I recommend are Osborne and Rubinstein's *A Course in Game Theory*. Other good choices for advanced references on game theory include Fudenberg and Tirole's *Game Theory* and Myerson's *Game Theory: Analysis of Conflict*. I like all three books for different reasons but one thing to note is that Osborne and Rubinstein's book is available for free online. As in the first course, *Game Theory: An Introduction* by Steven Tadelis is also useful, as is McCarty and Meirowitz's *Political Game Theory*. We will not focus on working through any textbook so I recommend these mainly as a reference for concepts throughout the course.

I assume that students have a working knowledge of algebra, elementary calculus, and basic probability theory. Political Science 5052 or a comparable course is sufficient. Since this is a second semester class I assume all students have completed such a course. I also assume knowledge of first semester game theory.

GRADES AND REQUIREMENTS

The main assignment for this course is an original formal model on a topic of your choosing. The assignment is divided up into five parts in order to ensure steady progress. I do not have page minimums or maximums but I estimate the final papers will something like a short paper or research note (typically 10-12 pages) on average. The individual assignments are listed below:

- Assignment 1 (Topic Proposal). Describe a research question you would like to answer. Explain why you think it is important. Briefly review some empirical and theoretical research related to your research question. At this stage, do not propose a model. Do think about the role a theoretical model would play in your understanding of the literature. Are you trying

to explain puzzling or conflicting findings? Are you trying to synthesize existing findings? Are you trying to answer a normative question instead? These are some possible answers but there are more.

- Assignment 2 (Informal Model Proposal). Informally describe the basic elements of a theoretical model designed to answer your question. Who are the relevant players? What choices can they make? What do they know or now know when they must make a choice? What are the possible outcomes? What are their preferences over outcomes?

- Assignment 3 (Formal Model Description). Describe your formal model and solution concept. This will include simply formalizing your answers to the questions in Assignment 2 but also filling in additional details to complete your model. Describe your solution concept.

- Assignment 4 (Preliminary Solutions). This will be your first attempt at solving your model. Walk the reader through proofs of main results. The analysis may be slightly incomplete but most of the argument should be there. At the end, describe what still needs to be done to complete the analysis.

- Assignment 5 (Final Paper). This should look like an abbreviated research paper including the full analysis of your model. However, do not write an extensive literature review beyond what you did in the previous parts and the papers you directly consulted (this can be done after the course is over).

The course grade will be determined as follows:

- 30% participation. We will work through technical details of every paper together in class. Therefore, my definition of full participation is that the student arrives having worked through the reading carefully and is prepared to discuss the details of technical arguments on the whiteboard and in class discussion.

- 50% final paper.

- 20% assignments 1-4 (5% each).

COURSE POLICIES

- Attendance Policy. Students must attend the course.

- Late assignments. Late assignments may be accepted with a 10% deduction before graded assignments have been returned to students. After that time, late assignments will not be accepted.

- Accommodations due to disability. If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours.

COURSE SCHEDULE

The course schedule is divided into seven two week sections covering one technical topic. Generally, the first week's reading in each section covers some technical tool. The second week's reading is an applied paper that makes some use of that tool and that I think you will find substantively interesting. All readings will be on Canvas except for Tadelis which I expect you already own.

Existence

January 21 McCarty and Meirowitz Chapter 5 sections 4-10, and Nachbar's notes

January 28 Application: Penn 2008

Comparative statics

February 4 McCarty and Meirowitz Chapter 5 , section 11, and Ashworth and Bueno de Mesquita 2006 **ASSIGNMENT 1 DUE**

February 11 Application: Baliga, Bueno de Mesquita, and Wolitsky, 2021

Stationary dynamic games

February 18 Gehlbach Chapter 9

February 25 Application: Bowen and Zahran 2012 **ASSIGNMENT 2 DUE**

Mechanism design

March 4 Tadelis Chapter 14

March 11 Application: Fey and Ramsay 2011. **ASSIGNMENT 3 DUE**

March 18 Spring break, no class

Information transmission and cheap talk

March 25 Tadelis Chapter 18

April 1 Application: Dziuda and Salas 2019 **ASSIGNMENT 4 DUE**

Persuasion games with commitment

April 8 Kamenica and Gentzkow 2011

April 15 Application: Gehlbach and Sonin 2014

Psychological games

April 22 Dhami, Chapter 13

April 29 Schnakenberg and Wayne 2022

May 06 Assignment 5 (final paper) due.