Political Science 506: Theories of Individual and Collective Choice II[1][2]

Tuesday 5:30 PM – 7:30 PM   Seigle   Room 305

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Course Abstract: 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 through exposure to core applications in political science.

Course Goals:

- Expand knowledge of applications of formal theory to political science

- Practice solving formal models

- Practice reading, presenting, and writing about research that has formal models.

- Practice making one's own contribution to the formal theory literature.

- Increased facility with the following technical matters: fixed-point theorems, continuity of correspondences, the Theorem of Maximum, and monotone comparative statics.

Prerequisites: Either PS 505 or an equivalent game theory course. Key solution concepts you should know are Nash equilibrium, subgame prefect equilibrium, weak sequential equilibrium (i.e., perfect Bayesian equilibrium), etc.

Course Textbook and Readings: The required textbook for this class is Scott Gehlbach's *Formal Models of Domestic Politics*, available for purchase online. All other readings can be found in the library, online, our class Box folder, or can be borrowed from me or Ryan.

Course Format: Students will take turns presenting assigned readings. The aim of a presentation is to teach the material to the class.

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[1]Last edited on January 13, 2020.
[2]If needed, I reserve the right to update any aspect of this syllabus.

Work required for the course:

Class participation and presentations: All students are to read the assigned readings before the class in which they are discussed and regularly contribute to class discussions. In addition, students will take turns presenting parts of the readings. These presentation are to give the presenter practice teaching others formal theory. In additions, student should regularly contribute to class discussions.[3] [4] (1/3 of grade)

Problem Sets: You'll be expected to solve and turn in approximately one exercise per week. (1/3 of grade)

Writing: Write a research proposal (that includes a literature review), a model extension, or a research paper. Whichever you choose, it should be about ten pages in length, double spaced. The rough draft is due at 12 PM on March 31st (1/6 of grade) and the final draft (1/6 of grade) is due at 12 PM on April 21st. Both the rough draft and the final draft should be uploaded to our shared Box folder. (1/3 of grade).

Research Proposal. Identify at least sixteen papers, two books, and at least two opinion editorials (NYT, WSJ, Washington Post, or leading non-US papers) that are in some way related to a topic you are interested in. You should do your best to familiarize yourself with the sixteen papers and the books you identified. You are to summarize this literature, identify a minimum of two possible open questions, and for at least one of the open questions, spend a couple pages discussing the modeling framework you might use to pursue that question, and your conjectures about possible results that would arise within that modeling framework. Some guidelines for the sixteen works you identify are:

1. A minimum of ten should be formal models

   (a) Of these ten, if possible, try to identify at least two papers from the 1980s, at least two from the 1990s, at least two from the 2000s, and at least two from the 2010s.

   (b) Of these ten, if possible, at least two should be from journals in economics.

2. Of the sixteen papers, if possible, at least one should be published in a law review (e.g., Harvard Law Review, Yale Law Review, etc.)

3. You should identify at least two books on the topic that interests you. Ideally, at least one would be written by someone who is not a political scientist by training (e.g., a historian, a sociologist, a political philosopher, or a law professor)

Model Extension. You should take an existing published paper and think about the various ways one could vary the model (i.e., assumptions one could change). Upon doing so, you should vary one of the

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[3]The maximum grade a student can receive if they miss strictly more than two classes is an A-. The maximum grade a student can receive if they miss strictly more than four classes is a B-.

[4]Also, included under class participation is the quality of your feedback on your peer's writing in the role of a (friendly) "referee" on their rough draft and a (friendly) "discussant" on their final draft.

assumptions of that model and examine how the results of the model change as a result of the change in assumption.

Research Note. Read Hal Varian's "How to Build an Economic Model" (in our class Box) and follow his guidelines for how to write a model. In the final draft, be sure, at a minimum, to identify the two closest models to the model you wrote up, and explain how your model differs from those two models. Your final product should read like a short paper you would find in a journal.

University Policies and Student Resources: Please see here.

Academic Integrity: Please see here.

Readings

Week 1: January 14 *Overview*

- Varian, Hal. 2016. "How to Write an Economic Model in Your Spare Time." *The American Economist* 61(1):81–90.

Week 2: January 21 *Electoral Competition Under Certainty*

- Gehlbach, Chapter 1

Week 3: January 28 *Electoral Competition Under Uncertainty*

- Gehlbach, Chapter 2

Week 4: February 4 *Special Interest Politics*

- Gehlbach, Chapter 3

Week 5: February 11 *Veto Players*

- Gehlbach, Chapter 4

Week 6: February 18 *Delegation*

- Gehlbach, Chapter 5

Week 7: February 25 *Coalitions*

- Gehlbach, Chapter 6

Week 8: March 3 *Political Agency*

- Gehlbach, Chapter 7

Week 9: March 17 *Regime Change*

- Gehlbach, Chapter 8

Week 10: March 24 *Nondemocracy*

- Gehlbach, printout

Week 11: March 31 *Existence of Nash Equilibria*

- Sundaram, Rangarajan. 1996. *A First Course in Optimization Theory*, Chapter 9.

- Banks, Jeffrey S. and John Duggan. 2008. "A Dynamic Model of Democratic Elections in Multi-dimensional Policy Spaces." *Quarterly Journal of Political Science* 3:269–299. [recommended]

Week 12: April 7 *Envelope Theorem, Implicit Function Theorem, and Monotone Comparative Statics*

- Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green. 1995. *Micro-Economic Theory*, pp. 940–943, 964–966

- Ashworth, Scott and Ethan Bueno de Mesquita. 2005. "Monotone Comparative Statics." *American Journal of Political Science* 50(1): 214–231.

- Dragu, Tiberiu. 2011. "Is There a Tradeoff Between Security and Liberty? Executive Bias, Privacy Protections, and Terrorism Prevention." *American Political Science Review* 105(1): 64–78. [recommended]

Week 13: April 14 *Refinements in Signaling Games*[5]

- Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green. 1995. *Micro-Economic Theory*, pp. 450–460, 467–472

- Cho, In-Koo and Joel Sobel. 1990. "Strategic Stability and Uniqueness in Signaling Games." 50:381–413, pp. 381–385.

- Fox, Justin and Matthew Stephenson. 2015. "The Welfare Effects of Minority-Protective Judicial Review." *Journal of Theoretical Politics* 27(4):499–521, pp. 499–512 [recommended][6]

Week 14: April 21 *Repeated Games with Perfect, Imperfect, and Imperfect Private Monitoring*

- Levin, Jonathan. *Repeated Games I: Perfect Monitoring.*

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[5]I might replace this unit or the next unit with a unit on mechanism design.
[6]The paper's supplemental appendix is here.

- Levin, Jonathan. *Repeated Games II: Imperfect Public Monitoring.*

- Levin, Jonathan. *Repeated Games III: Imperfect Private Monitoring.* [recommended]

Class Presentations: TBA

Additional resources for pushing your technical skills:

- Avi Acharya's game theory reading list for his qualifying exams

- John Duggan's "Introduction to the Formal Political Theorist's Basic Toolkit of Rational Choice Models."

- John Duggan's student resources.

- Jianjun Miao's book *Economic Dynamics in Discrete Time*

Additional modeling frameworks:

- Steven Callander's work on "Hard Problems in a Changing World"

- Other topics can be listed here ...