COURSE OVERVIEW

This course builds upon POLS 601 (which is a prerequisite) and is a second course in game theory. The course is a combination of applied and advanced game theory. It is applied in that the primary focus will be to read and understand prominent game-theoretic models that have been used to study many important substantive topics in political science, in both domestic politics and international relations. It is advanced in that many of these models are quite technically sophisticated, and introduce game-theoretic concepts that we may not have fully encountered yet (additional equilibrium refinements, etc.), as well as whose solution is quite technically challenging. A major goal will be for students to learn how to construct parsimonious models that capture the core strategic features of political phenomena of interest. This is well-learnt by studying many such models that others have constructed and analyzed, and thinking carefully about why these authors made the assumptions and modeling choices that they did. A second major goal will of course be to further develop your
technical ability to solve such models and find their equilibria. A third goal is to develop a knack for identifying the substantive importance of features of those equilibria—being able to understand which results are interesting and worth emphasizing, and being able to convince readers why they should care about your formal analysis and why it should be published. Besides further developing the tools in your game-theoretic “toolkit”, the logical deductive reasoning you will be engaged in throughout the course should enhance your ability to develop coherent and convincing theoretical arguments regardless of whether these arguments are formalized or not.

**COURSE REQUIREMENTS**

Your grade will be based on regular homework assignments, and an exam at the end of the semester (either in-class or take-home; this will be decided later). The homework assignments will together account for 70% of your grade, and the exam will account for 30% of your grade.

**REQUIRED TEXTS**


**RECOMMENDED GAME THEORY TEXTS**

- Tadelis, Steven. 2013. *Game Theory: An Introduction*. Princeton University Press. (An excellent intermediate-level text, with lots of applications from political science. Has an especially excellent treatment of decision theory. Provides formal statements of propositions and proofs, which is a slight advantage over the Osborne text.)
- Osborne, Martin J. 2004. *An Introduction to Game Theory*. Oxford University Press. (Another excellent intermediate-level text, with lots of applications from political science. Is perhaps a slightly gentler introduction than Tadelis, but is basically at the same level.)
- Gibbons, Robert. 1992. *Game Theory for Applied Economists*. Princeton University Press. (Another excellent intermediate-level text. This has no applications from political science, but is an absolute gem. Provides perhaps the most clear verbal explanations of solution concepts of all the texts on this list.)
- McCarty, Nolan, and Adam Meirowitz. 2007. *Political Game Theory: An Introduction*. Cambridge University Press. (This is an advanced-level text, and is written explicitly for political scientists. Therefore, contains the most political science applications. Covers social choice theory, which is unique among the texts on this list. Also provides a rigorous treatment of decision theory, which is also unique.)
SOME OTHER GAME THEORY TEXTS

- Osborne, Martin J., and Ariel Rubinstein. 1994. *A Course in Game Theory*. MIT Press. (An excellent advanced-level text. If you want to pursue game theory at an advanced level, you should own this text, and work through it. Doesn’t provide much verbal discussion, and is not for the faint of heart.)

- Fudenberg, Drew, and Jean Tirole. 1991. *Game Theory*. MIT Press. (Another advanced-level text. Is probably the most comprehensive out there; covers almost every topic under the sun. Therefore is very useful as a reference if you want to pursue game theory at an advanced level. Not for the faint of heart.)

- There are other game theory texts out there, which I don’t comment on simply because I am not as familiar with them. Some may be excellent.
TOPICS
(The topics are broken down into 3 broad sections, and we will cover them in order. Sections II and III will be subject to minor changes and clarifications throughout the semester. For example, we won’t really be covering entire chapters from the Gehlbach and Kydd texts, but parts of them; specific page numbers will be given the week before. Similarly, we won’t be covering each chapter from each text; the exact chapters we will cover will be clarified later. Finally, some of the supplemental readings (mostly journal articles) may be changed to primary; this will also be clarified later.)

Section I: Core Concepts of Game Theory

1. Rapid Review of the Main Topics Covered in POLS 601:

   - Decision Theory and Expected Utility Theory
   - Simultaneous-Move Games of Complete Information (Strict and Weak Dominance, Nash Equilibrium-NE, Mixed-Strategy Nash Equilibrium-MSNE)
   - Sequential-Move Games of Perfect Information (NE, Subgame-Perfect Equilibrium-SPE)
   - Sequential-Move Games of Imperfect Information (NE, SPE, Perfect Bayesian Equilibrium-PBE)

Primary reading (as needed):

   - Tadelis Chapters 1-8, 15-16, OR
   - Osborne Chapters 1-7, 10

Supplemental reading:

   - Gibbons Chapters 1, 2, and 4
   - McCarty and Meirowitz Chapters 5, 7, and 8

2. Simultaneous-Move Games of Incomplete Information (Bayesian Nash Equilibrium-BNE)

Primary reading:

   - Tadelis Chapter 12 OR Osborne Chapter 9
   - Gibbons p.152-154 (Mixed Strategies Revisited) and p.155-157 (Auction)
   - McCarty and Meirowitz p.156-159 (Jury Voting)

Supplemental reading:
• Gibbons Chapter 3
• McCarty and Meirowitz Chapter 6

3. Repeated Games (The One-Stage Deviation Principle; The Folk Theorem)

*Primary reading:*

- Tadelis Chapters 9-10 (sections 2.4.2, 2.5.2, and 8.3.4 may also be useful), OR
- Osborne Chapters 14-15

*Supplemental reading:*

- Gibbons p.82-102
- McCarty and Meirowitz Chapter 9
- Kydd Chapter 8
Section II: Game-Theoretic Models of Domestic Politics

1. Electoral Competition under Certainty

Primary reading:

- Gehlbach Chapter 1

Supplemental reading:

- Selections from An Economic Theory of Democracy by Anthony Downs

2. Electoral Competition under Uncertainty

Primary reading:

- Gehlbach Chapter 2

Supplemental reading:


3. Special Interest Politics

Primary reading:

- Gehlbach Chapter 3

Supplemental reading:

(If interested also see Grossman and Helpman. 2001. *Special Interest Politics* from MIT Press)


4. Veto Players (and Agenda-Setting)

*Primary reading:*

- Gehlbach Chapter 4

*Supplemental reading:*

- Selections from Tsebelis, George. 2002. *Veto Players: How Political Institutions Work*
- Selections from Krehbiel, Keith. 1998. *Pivotal Politics*

5. Delegation

*Primary reading:*

- Gehlbach Chapter 5

*Supplemental reading:*


6. Coalitions

Primary reading:

• Gehlbach Chapter 6

Supplemental reading:


• Baron, David P. and Daniel Deiermeier. 2001. “Elections, Governments, and Parlia-

7. Political Agency

Primary reading:

• Gehlbach Chapter 7

Supplemental reading:


8. Regime Change

Primary reading:
• Gehlbach Chapter 8

Supplemental reading:


Section III: Game-Theoretic Models of International Relations

1. Power Change and War

Primary reading:

- Kydd Chapter 5

Supplemental reading:


2. Private Information and War

Primary reading:

- Kydd Chapter 6

Supplemental reading:


3. Arms Competition and War

Primary reading:
• Kydd Chapter 7

Supplemental reading:


4. Diplomacy and Signaling

Primary reading:

• Kydd Chapter 9

Supplemental reading:


5. Domestic Politics and International Relations

Primary reading:

• Kydd Chapter 11

Supplemental reading:


6. Cooperation Theory

*Primary reading:*

• Kydd Chapter 8

*Supplemental reading:*


7. Multilateral Cooperation

*Primary reading:*

• Kydd Chapter 10

*Supplemental reading:*

