Syllabus for Poli Sci 118:
Game Theory in Political Science

(Last updated August 3, 2019)

Instructor: Sean Ingham
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Course location: HSS 2150
Course time: M–Th., 9:30-10:50am
Office hours: M, 2-4pm

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Location: tbd

Course description

This course introduces students to game theory and its uses in political science. Topics covered include the concepts of Nash equilibrium and subgame perfect equilibrium and their application to the study of electoral competition, collective action problems, and agenda-setting.

Assignments and grades

The final grade will consist of scores on weekly problem sets (20%), participation (10%), a midterm exam (30%), and the final exam (40%). Students are strongly encouraged to work on the problem sets in groups, but each student must write up and submit their own solutions. The deadlines for the problem sets are indicated on the schedule below. They are due at the start of class on the day indicated. Late problem sets will not be accepted.

Required materials

We will spend most or all of the course on chapters 1, 2, and 3 of Martin Osborne’s An Introduction to Game Theory. These chapters are available on Osborne’s website:

https://www.economics.utoronto.ca/osborne/igt/

Additional readings will be made available as .pdf files on the course website.

Schedule

[1] **Aug. 5.** Payoff functions, “rational” actors, and games
  - Lecture notes (“Lecture 1 - math primer”)
- Osborne, *Introduction to Game Theory*, 1.1, 1.2

[2] **Aug. 6.** The Prisoner’s Dilemma

- Osborne, *Introduction to Game Theory*, 2.1, 2.2


- Osborne, *Introduction to Game Theory*, 2.3–2.5

[4] **Aug. 8.** Nash equilibria

- Osborne, *Introduction to Game Theory*, 2.6–2.7.6
- **First problem set due**

[5] **Aug. 12.** Voter participation

- Osborne 2.7.9


- Osborne, *Introduction to Game Theory*, 2.7.1–2.7.7


[8] **Aug. 15.** Dominant strategies

- Osborne 2.9.1, 2.9.2
- **Second problem set due**

[9] **Aug. 19.** Voting and other collective decision-making games

- Osborne 2.9.3, 2.9.4

[10] **Aug. 20.** Midterm exam

[11] **Aug. 21.** The Hotelling (or Downsian) model of electoral competition

- Osborne 3.3, through Exercise 72.1

2
   - Exercise 73.1 (candidates who care about location of winning position) in Osborne
   - Third problem set due

   - Osborne 5.1, 5.2

   - Osborne 5.3

   - Osborne 5.4, 5.5

[16] Aug. 29. Agenda control
   - Osborne 6.1.1

[17] Sept. 3. Ultimatum game
   - Osborne 6.1.2
   - Fourth problem set due

[18] Sept. 4. Buying votes
   - Osborne 6.4

[19] Sept. 5. To be determined.