

**Topics in Formal Theory**  
**(POL-GA 3200.001)**  
the Wilf Family Department of Politics  
New York University

**Course information**

Instructor: Congyi Zhou

Lecture: Wednesday 4-5:50PM

Office hours: by appointment

E-mail: cz536@nyu.edu (use the subject "Formal Theory 2021: Name").

**Course Description:**

This course is an advanced game theory course, we will discuss several topics in political economy. The first half of the course will focus on dynamic programming, and the second half will discuss some other topics.

**Prerequisites:**

Game theory in political science I and II, or equivalent courses.

**Grading:**

The grade will be based on presentations (30%) and a final project (70%). Each student needs to present at least two selected research papers in the class. Each student needs to turn in a one-three pages proposal at the midpoint of the course and a more detailed fifteen page write-up at the end of the course. This will involve identifying an area of study and a specific research question within that area. You should indicate what aspect of the analysis will be new and not already covered by the previous literature and why this will provide an important contribution. Why is it important to know the answer to the question? Next, you should provide the foundations of a model and some preliminary results.

**Textbook**

"Recursive Methods in Economic Dynamics" by Stokey, Lucas, and Prescott (SLP)

"Microeconomic Theory" by Mas-colell, Whinston and Green (MWG)

"Introduction to Stochastic Dynamic Programming" by Sheldon Ross

"Formal Models of Domestic Politics" by Scott Gehlbach

**Course Outline:**

**Topic 1: Math Preliminaries and Deterministic Dynamic Programming with Discounting**

- SLP, Chapters 3-6 and Ross, Chapter 2.

**Topic 2: Dynamic Programming under Uncertainty**

- SLP, Chapters 7-9.

### **Topic 3: Dynamics and Stability**

- SLP, Chapters 11,12

### **Topic 4: Positive and Negative Dynamic Programming**

- Ross, Chapter 3-4

### **Topic 5: Electoral Competition**

- Gehlback Ch.1. and Ch.2.

#### **Optional:**

- Feddersen and Pesendorfer “The swing voter’s curse” *American Economic Review*, 82(1) (1996), 34-51.

- Burton “A Theory of Strategic Voting in Runoff Elections” *American Economic Review*, (2013): 1248-1288.

### **Topic 6: Special Interest Politics**

- Gehlback Ch.3.

#### **Optional:**

- Coate “Pareto-Improving Campaign Finance Policy” *American Economic Review*, (2004): 628-655

- Ashworth “Campaign Finance and Voter Welfare with Entrenched Incumbents.” *American Political Science Review*, 100(1) (2006):55-68

- Bombardini and Trebbi “Votes or Money? Theory and Evidence from the US Congress.” *Journal of Public Economics*, 2011, 95(7-8):587-611

### **Topic 7: Agency**

- MWG Ch. 13-14

#### **Optional:**

- Ashworth “Reputational dynamics and political careers.” *Journal of Law, Economics, and Organization* 21.2 (2005): 441-466.

- Callander “A Theory of Policy Expertise” *Quarterly Journal of Political Science* Vol 3. No.2 (2008):123-140.

### **Topic 8: Delegation**

- Gehlback Ch.5.

#### **Optional:**

- Aghion and Tirole “Formal and Real Authority in Organizations”, *Journal of Political Economy* 105 (1997):1-29.

- Spiller and Tiller “Decision Costs and the Strategic Design of Administrative Process and Judicial Review.” *Journal of Legal Studies* 26(2) (1997) :347-370.

- Bendor, Glazer, and Hammond “Theories of Delegation”, *Annual Review of Political Science* 4 (2001):235-269

- Alonso and Matouschek “Optimal Delegation”, *Review of Economic Studies*, 75(1) (2008), 259-293.

**Topic 9: Cheap Talk and Persuasion**

- Crawford and Sobel “Strategic information transmission” *Econometrica* (1982):1431-1451
- Kamenica and Gentzkow. “Bayesian persuasion” *American Economic Review* (2011): 2590-2615.

**Optional:**

- Kartik “Strategic communication with lying costs” *Review of Economic Studies* 76.4 (2009):1359-1395
- Gentzkow and Kamenica “Competition in persuasion” *Review of Economic Studies* 84.1 (2016): 300-322
- Backus and Little “I Don’t Know” *American Political Science Review* 114.3 (2020):724-743