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-cocell, 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:

Topic 6: Special Interest Politics
- Gehlback Ch.3.
  Optional:

Topic 7: Agency
- MWG Ch. 13-14
  Optional:

Topic 8: Delegation
- Gehlback Ch.5.
  Optional:
Topic 9: Cheap Talk and Persuasion
- Crawford and Sobel “Strategic information transmission” Econometrica (1982):1431-1451

Optional:
- Backus and Little “I Don’t Know” American Political Science Review 114.3 (2020):724-743