Economics 607: Macroeconomic Theory I

TR 3:00-4:15 PM, Webster Hall 102

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Course Description:
In Macroeconomic Theory I, we will introduce a set of basic analytical tools and models, which are the workhorses of modern macroeconomics (also known as recursive macroeconomics), and apply them to touch some research topics on the frontier. In the first half of the course, we will focus on the framework and methodology. In particular, we will study the dynamic programming method which is widely used in recursive macroeconomics. Then, we will apply this method to study various macroeconomic topics and models including economic growth, overlapping generations models, monetary economics with explicit microfoundation, labor market, consumption and asset pricing, and real business cycles. By the end of the semester, students should not only get some feeling about the frontier of modern macroeconomic research, but also possess the ability to formulate a research question in the dynamic general equilibrium framework.

Textbooks:
The MIT Press. (optional)


**Lecture notes:**

Lecture notes will be posted before each lecture on the website. I recommend you read through the lecture notes before you come to the class.

**Exams:**

There will be a midterm exam (TBA in class) and a final exam (Tuesday, December 13, 2:15–4:15 p.m.). The final exam only covers materials discussed after the midterm. The midterm counts 30% towards the final grade, and the final counts 40%. Both are closed book exams. No make-up exam is offered, unless compelling evidence of medical emergency is provided.

**Homework Assignment:**

There will be four to five homework assignments during the semester, which count 30% towards the final grade. They will be posted on the website with clear due days. Late submission is NOT accepted. Students may choose to form study groups to discuss the homework problems. However, each individual student is expected to complete the homework on their own. Copying solutions from one another or from the internet is strictly prohibited.

**Course Contents:**

1. Introduction to Dynamic Programming, Equilibrium and Welfare Theorems
   Reading: SLP Chapter 2, LS Chapter 1\(^3\) and 8

2. Mathematical Preliminaries for Dynamic Programming
   Reading: SLP Chapter 3

3. Dynamic Programming under Certainty
   Reading: SLP Chapter 4, LS Chapter 3

4. Some Practical Issues about Dynamic Programming
   Reading: SLP Chapter 5, LS Chapter 4 and 5

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\(^3\) This chapter is a nice but a bit difficult summary of the course. Enjoy it!
5. Economic Growth
Reading: LS Chapter 14, Barro & Sala-i-Martin: Chapter 1, 2, 4, 5

6. Overlapping Generations Models (with Money)
Reading: LS Chapter 9, Romer Chapter 2 Part B

7. Monetary Models with a Microfoundation: Cash-in-Advance and Search
Reading: LS Chapter 24 and 26, Walsh Chapter 3

8. Search and Matching Models in Labor Market
Reading: LS Chapter 6 and 26, Pissarides Chapter 2
9. Consumption and Asset Pricing
   Reading: LS Chapter 13, Romer Chapter 7

10. Real Business Cycles
    Reading: Romer Chapter 4

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4 This part is optional and we will only cover it if time allows.