Objective of the course:
This course is intended to introduce a set of basic analytical tools and frontier research topics in modern dynamic macroeconomics (also known as rational expectation macroeconomics or recursive macroeconomics). First half of the lecture time will be devoted to give a brief introduction to the dynamic method used widely in recursive macroeconomics: theoretical and practical Dynamic Programming, Second half of the lecture time will be focused on its applications: economic growth, asset pricing, real business cycle theory, and incomplete market model. These topics will be addressed both qualitatively and quantitatively. Through the study, hopefully students can get familiar with formulating a theoretical question into dynamic general equilibrium framework and get some feeling about what is the frontier of macroeconomic research.

Textbooks:


Lecture Notes
The lecture notes can be downloaded from my website. I recommend you read the lecture notes before you go to the class. I will follow closely the topics on the lecture notes.
Requirements and Grading
There will be a midterm (TBA in class) and a final exam (Thursday, December 18). The final exam only covers material discussed after the midterm. Midterm exam counts 30% toward the final grade. Final exam counts 40%. I will also assign 5-6 homework problem sets during the semester that count 30% towards the final grade. No late homework is accepted, and no make-up exam is offered, unless strong evidence of medical emergency is provided. Finally, no +/- will be used in grading.

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<thead>
<tr>
<th>Homework</th>
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   Lecture Notes: Chapter 1
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2. Mathematical Preliminaries for Dynamic Programming
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3. Dynamic Programming
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4. Computing Dynamic Programming
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5. Linear Quadratic Dynamic Programming
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6. Economic Growth Model
   Lecture Notes: Chapter 6
   LS:  Chapter 14
   Barro & Sala-i-Martin: Chapter 1, 2, 4, 5
7. Asset Pricing
Lecture Notes: Chapter 7
LS: Chapter 13

8. Real Business Cycle Model and Calibration Exercise
Lecture Notes: Chapter 8

9. Overlapping-Generations Model (if time allows)
Lecture Notes: Chapter 9
LS: Chapter 9
Romer: Chapter 2 (part B)

10. Incomplete Market Model with Heterogeneous Agents
Lecture Notes: Chapter 10
LS: Chapter 16, 17

Note: * indicates the required reading.