Course Overview

This is the first of two core classes in macroeconomic theory. The goal of this course is twofold. The first goal is to introduce students to some standard tools and models that currently dominate macroeconomics. The second goal is to learn how to apply dynamic general equilibrium models to answer questions in macroeconomics.

References

Most of the material will be based on lecture notes. The main additional references for this course are:


Course Requirements

Homework. The course work consists of four problem sets, a midterm and a final exam. The assignments will be posted on the class webpage. The homework assignments will count towards 25% of the grade. The Midterm Exam will count for 35% of the final grade, and the Final Exam will be worth the remaining 40% of the final grade.

No late assignments are accepted. Only documented special circumstances will exempt you from this rule. If you know in advance that you will not be able to hand in an assignment on time, you must notify the Instructor before the assignment is due and hand it in early. Assignments are due at the beginning of class. Please do NOT submit any problem sets via email.

Collaboration among students is accepted and highly recommended. However, each student should write the homework separately, clearly acknowledging any type of help that was received. Identical homeworks will be considered scholastic dishonesty and consequently given a grade of zero.

Course Outline

The following is a list with the topics that will be discussed throughout the course.

I. Competitive Equilibrium and Pareto Optimality in Simple Dynamic Economies
   • Arrow-Debreu Markets Economies.
   • Sequential Markets Economies.
   • The Fundamental Welfare Theorems and the Negishi’s Approach

II. Refresher on the Solow Model
   Readings:
   • Acemoglu Ch.2

III. Infinite-Horizon Optimization and Dynamic Programming
   • Mathematical Preliminaries: Metric Spaces, Contraction Mapping Theorem, The Theorem of Maximum
   • Discrete time infinite-horizon optimization
   • Stationary dynamic programming
   • Introduction to the theory of optimal control
   Readings:
   • Acemoglu Ch. 6-7, SLP Ch. 3-4-5, LS Ch.3-4
IV. Neoclassical (Ramsey-Cass-Koopmans) Growth Model

- Neoclassical Growth Model
- Introducing taxes to the growth model

Readings:
Acemoglu Ch. 8, LS Ch.8, Lecture Notes by Prof. Larry Jones

V. Overlapping Generations Economies

- The baseline overlapping generations model
- Competitive equilibrium and Pareto Optimality in OLG economies
- Growth with overlapping generations

Readings:
Acemoglu Ch.9, LS Ch.8,