Faculty of Arts and Social Sciences

Macroeconomics I - ECON 503

Fall 2022

Instructor: Emrehan Aktuğ
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Lectures: Monday 3:40 pm-5:30 pm in FASS 1097

                    Tuesday 1:40 pm-2:30 pm in FASS 1001

Office Hours: Tuesday 2:30 pm - 4:30 pm

Teaching assistant: Sonnur Baş (sonnur.bas@sabanciuniv.edu)

                    Office hour: TBA

Course Description:

This course is the first of a sequence that will introduce you to the methods of, and some of the issues in modern macroeconomics. Specifically, this semester is an introduction to the basic tools and concepts of dynamic economic theory. In the first half of the semester we will focus on *finite* dimensional economic environments. We will start with a *static* model and study features of *equilibria* and *Pareto-optimality* for the environment. Then, we will introduce *time* to study *intertemporal* decision making. After introducing certain new features to our new *dynamic* model, we will study implications of certain government policies.

In the second half, we will study deterministic *neoclassical growth models*, one of the main workhorses of modern macroeconomics. *Dynamic programming* and *recursive competitive equilibrium* are the tools that you will be learning. Simple computational methods for analyzing these models will also be discussed and we will begin to write computer programs to help us solve and understand the properties of economic models that are often too complicated to be solved analytically.

The main source of readings for the course is the **lecture notes**. Supplementary readings for each topic are listed below. The reading material can be obtained at the Reserve Collection of the Information Center. Additional readings may be assigned throughout the semester.

Grading:	Midterm:	40 %
	Final:	40 %
	Problem sets:	20 %

Attendance is mandatory and negligence affects grades!

Rules of Conduct

- Class attendance is **mandatory** and **negligence** affects grades. Students are responsible for all the material covered during the lectures. Lecture notes will ***not*** be posted on the course website.

- Make-up exams are granted only in case of a valid and documented reason. Absence in exams without any valid documented reason will result in a grade of 0 from that exam. In case of an illness, you are required to bring a formal doctor's note from a hospital. A doctor's note taken from a doctor's private practice does not count as formal. In case of private hospitals, the doctor's note must be verified by the university health service. You must bring the doctor's note to me ***within 5 business days*** after the exam.

- The definition for scholastic dishonesty is given in the rules and regulations of the Sabancı University. Cheating during written work will result in a course grade of F. All incidents of scholastic dishonesty will be reported to the Dean's Office.

- All class announcements, grades and problem sets will be posted on the course website, which is available on SUCourse. Make sure to visit the site frequently.

References

- Lars Ljungqvist and Thomas Sargent, *Recursive Macroeconomic Theory*, The MIT Press.
- Nancy L. Stokey and Robert E. Lucas, Jr. with Edward C. Prescott, 1999, *Recursive Methods in Economic Dynamics*, Harvard University Press.
- David Romer, 1996, *Advanced Macroeconomics*, McGraw-Hill.
- Additional: Lecture notes by Nezih Güner and Dirk Krueger

Course Outline

1. **General Equilibrium Theory under Certainty in Finite Dimensional Exchange Economies**

    - Defining an exchange economy

    - Walrasian Equilibrium

    - First and Second Welfare Theorems

2. **Introducing Time and Uncertainty**

    - Two-period exchange economy

    - Arrow-Debreu Equilibrium (AD)

    - Sequential Markets Equilibrium (SME)

    - More than two periods

    - Life-cycle/permanent income hypothesis

3. **Overlapping Generations Economies**

   - Structure of OLG economies
   - Competitive equilibrium and its properties
   - Introducing a government
   - Ricardian Equivalence
   - Introducing production

4. **Neoclassical Growth Model**

   - Solow Model
   - Neoclassical Growth Model
   - Introducing taxes

5. **Finite Horizon Dynamic Programming**

   - Life-cycle model and its implications

6. **Dynamic Programming Under Certainty**

   - Mathematical Preliminaries: Metric Spaces, Contraction Mapping Theorem, The Theorem of Maximum
   - Deterministic Dynamics
   - Equilibrium concepts: Date-0 Arrow-Debreu, Recursive Competitive Equilibrium

7. **Simple RBC Model in Dynare (if time permits)**