

Macroeconomic Theory 1

ECON 620

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Lecture: 2:35pm – 3:55pm, MW
Location: LEA 424

Course description

In this course we will study several fundamental concepts in macroeconomic theory with a focus on dynamic (real) models. As this is a course in theory, emphasis is placed on providing a set of tools and building blocks which allow us to construct and analyze macroeconomic models. An important feature of “modern” macroeconomics is that models are based on microeconomic foundations, e.g. the consumption-savings problem of a household, the investment decision of a firm. An exception to this is the Solow Growth Model where micro-foundations are absent. Nonetheless, this model is a good starting point as it is dynamic in nature and familiar to most of you. We then introduce micro-foundations by studying the Neoclassical Growth Model, which is a central workhorse model in macroeconomics. Here we will focus on the Planner’s Problem as opposed to the decentralized economy. We then turn to the toolkit of modern macroeconomics: dynamic programming. However, instead of providing a rigorous exposition, the coverage will be rather loose but still useful. You will see that standard optimization techniques and dynamic programming yield the same results, yet, dynamic programming is a more powerful approach. Dynamic programming is also not unique to macroeconomics but also shows up in fields such as IO and labor economics, among others. The course will then become more microeconomic in nature as we spend some time studying the income fluctuation problem in some detail. This problem is an important ingredient in heterogeneous-agent models, a class of models which is commonly used in macroeconomic research to address policy-relevant questions.

Textbooks

There is no required textbook but there are three main sources that you can consult beyond the lecture material: (1) Advanced Macroeconomics by David Romer, McGraw-Hill, (2) Dynamic Economics by

Jerome Adda and Russell Cooper, MIT Press 2003, and (3) Recursive Macroeconomic Theory by Lars Ljungqvist and Thomas Sargent, MIT Press 2004 (too advanced for our purposes but if you intend to pursue a PhD you may want to take a look).

Grading & Exams

We will have one final exam (50%), one midterm exam (30%), and four problem sets (20%). The midterm exam is scheduled to be in class on **October 19**. The final exam time and location are decided on the department level later on in the term. If you miss the midterm for medical reasons, its weight will be added to that of the final exam, but only if you provide me with a valid medical note.

Preparation for exams

You are primarily tested on the material covered during lectures. Attending lectures and taking good notes are thus excellent methods of preparation. Discussing the material with your peers is also very useful. I encourage you to consult the TA and me during office hours if you are having difficulties or seek further clarifications. Please use email only sparingly since I would much rather talk to you face to face.

Communication

I will use *mycourses* for posting relevant material, such as notes and problem sets, and for making announcements. Please check this webpage regularly.

Course Outline

I may adapt this course outline as we proceed through the course. This is especially salient for the last part (Heterogeneous-agent economies).

The Solow Growth Model

- Production as the central element of the economy
- Equilibrium dynamics and steady states
- Using the model to understand growth
- Continuous-time modeling and applications
- Population growth and technological progress

The Neoclassical Growth Model

- Consumer choice as the central element of the economy
- Focus on the planner's problem (welfare theorems hold)
- Introducing uncertainty
- Representation of risk with Arrow-Debreu securities
- Revisiting the Neoclassical Growth Model with uncertainty

Introduction to dynamic programming

- Value functions and functional equations
- Revisiting the Neoclassical Growth Model
- Solution methods (mainly numerical)

The Income Fluctuation Problem

- The permanent income hypotheses
- Permanent and transitory income shocks
- Lifecycle savings, precautionary savings

Heterogeneous-agent economies

- Introduction to incomplete markets and heterogeneous agents
- Full vs. partial consumption-risk sharing

Academic Integrity

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offenses under the code of student conduct and disciplinary procedures (see <http://www.mcgill.ca/integrity/> for more information).

L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site <http://www.mcgill.ca/integrity/>).