THE GRADUATE INSTITUTE GENEVA

INSTITUT DE HAUTES ÉTUDES INTERNATIONALES ET DU DÉVELOPPEMENT
GRADUATE INSTITUTE OF INTERNATIONAL AND DEVELOPMENT STUDIES

International Economics
Development Economics

Academic year 2019-2020

Advanced International Macroeconomics A: Methods and Models

EI082 - Autumn - 3 ECTS

Tuesday 10h15 - 12h00

Course Description

This course provides a graduate-level treatment of the international macroeconomics of trade and financial linkages. Topics covered include: basic tools such as dynamic optimization and applications of perturbation methods; small open economy models of inter-temporal trade; international business cycles and capital flows; and labor markets.

PROFESSOR

Rahul Mukherjee

Office hours
Tuesdays 4-6PM, P1-619, only by appointment:
https://rahulmukherjee.youcanbook.me/

ASSISTANT

Office hours

Syllabus

[Tentative; revised version on first day of class]

Prerequisites: This course provides an overview of the basic dynamics methods and models of international macroeconomics and trade. I will assume that you have taken at least the Master-level Macro course at IHEID (or its equivalent) and are therefore familiar with the basic graduate level model of macroeconomics and trade (see syllabus of Macro A/B). Masters level knowledge of multivariate calculus, linear algebra, and probability will also be required. Prior knowledge of a programming language will be useful but not necessary for picking up Matlab, which will be used for some exercises.

Course materials: The lectures will be taught using a mix of slides and the white board. The slides will be e-mailed to you each week before the class. There is no text book for the course, but we will be using a number of references that are listed below. Don't be intimidated by the length of the list because it is also meant for future reference; we will only cover small portions from each source. I will mention the references for a particular lecture during the lecture or on the slides.

1) Mathematics for Economists (Simon and Blume)
2) Dynamic Economics (Adda and Cooper)
3) Recursive Methods in Economic Dynamics (Stokey and Lucas)
4) Recursive Macroeconomic Theory (Ljungqvist and Sargent)
5) Optimal Control Theory and Static Optimization in Economics (Léonard and Van Long)
6) Elements of Dynamic Optimization (Chiang)
7) Mathematical Economics (Takayama)
8) Numerical Methods in Economics (Judd)
9) Computational Methods for the Study of Dynamic Economies (Marimon and Scott, ed.)
10) Frontiers of Business Cycle Research (Cooley, ed.)
11) Advanced Macroeconomics (Romer)
12) Foundations of International Macroeconomics (Obstfeld and Rogoff)
13) Equilibrium unemployment theory (Pissarides)

A gentle introduction to mathematical analysis underlying some of the methods we will learn may be found in:

14) *Mathematical Analysis* (Binmore)

Software: We will be making use of Matlab, a software package for solving and simulating dynamic models. If you have never used Matlab before:

14) Matlab Primer (Sigmon)
(http://www.math.ucsd.edu/~bdriver/21d-s99/matlab-primer.html)

Grades: The final grade on the course will be a weighted average of **two graded homework assignment** (worth 60%) and a **final** (40%).

Homework assignments: You are encouraged to have discussions with your classmates regarding homework. However, you should work on them on your own, and turn in your own copy. The assignments must be submitted in hard copy. They must be legible and stapled. If you are not confident about your handwriting, please type up your assignment in Word or Latex. Due date of assignments will be mentioned at the beginning of an assignment.

Final Exam: The final exam will be cumulative and closed-book.

Your course grade will be a weighted average of the scores in problem sets and the final.

Course schedule: Below is a tentative course schedule. I might revise it as the course progresses to include or exclude topics depending on our pace.

Date	Assignment	Topics
Week 1		
Tuesday, September 17th Class 1		Course introduction; basic dynamic optimization: constrained optimization in discrete and continuous time; Application to small open economy model with capital
Week 2		
Tuesday, September 24th Class 2		Solving linear rational expectation models; introduction to Matlab
Week 3		
Tuesday, October 1st Class 3		Log-linearization methods; Application to international business cycle model
Week 4		
Tuesday, October 8th Class 4		Higher order approximation methods: Application to international capital flows with
Week 5		
Tuesday, October 15th Class 5		Mathematical preliminaries; introduction to Dynamic Programming (DP)
Week 6		
Tuesday, October 22nd Class 6		Implementing DP numerically: value function and policy function iteration
Week 7		
Tuesday, October 29th Class 7		Application to labor markets