UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

# Growth Theory and Empirics: An International Perspective

**2122-1-F5602M004-F5602M007M**

## Learning objectives

This course is designed to present you key developments in advanced macroeconomic theory, which are used to explain the determination of economic growth, consumption and investment at a global level. Through this course, you will acquire a logical and consistent framework for assessing analytically key macroeconomic issues and develop the ability to employ the correct macroeconomic tool(s) to evaluate specific policy proposals. You will be introduced to inter-temporal dynamic optimisation and the related equilibrium concepts. This course aims at providing you with strong mathematical and analytical foundations, for assessing and critically evaluating the impact of different macroeconomic policies.

Having taken this course, you should be able to:

1. Derive analytically and analyse advanced micro-founded models of the economy and explain their main economic intuitions.

2. Be able to interpret the "stylised facts" in the field of macroeconomics using advanced tools of modern macroeconomic theory.

3. Compare and contrast the implications for macroeconomic policy of different economic theories.

## Contents

This course is the first part of a the larger module "Global Macroeconomics". The model is organised around the

discussion of a number of broad topics: Growth, Real Business Cycles, New Keynesian models, Financial Crisis, Unconventional Policies.

The course "Growth Theory and Empirics: An International Perspective" can be divided in two parts:

1. The long-run: Growth theories

2. The short-run: Ramsey model, Decentralised Economy, Diamond model

The first part addresses two key issues: i) what determines long-run growth; ii) why is per capita income in some countries higher than elsewhere. Topics include the role of technical change, savings rate, population growth, knowledge dynamics. We will also incorporate endogenous growth, i.e. endogeneity of productivity growth to economic incentives. A backbone of this part of the course will be the cross-country comparison of data and model's predictions.

The second part of the course provides the backbone for general equilibrium micro-funded macroeconomic models. We will introduce a simple neoclassical consumption model and we will increase the level of complexity addressing issues as distorsive taxation, optimal pension systems in the context of Overlapping Generation Models, and real-business cycles fluctuations.

## Detailed program

There will be approximately 42 hours of lectures and seminars.

Week #1

1. International facts about economic growth
2. The Solow model
3. Solow model extensions and the Romer model
4. Growth in Open Economy: a global view
5. Neoclassical Consumption Model
6. Seminar 1

Week #2

1. Ramsey model (part 1)
2. Ramsey model (part 2)
3. Ramsey model, with flexible labor
4. Dynamic General Equilibrium Model (DGE): decentralised economy (part 1)
5. Seminar 2

Week #3

1. DGE: decentralised Economy (part 2)
2. Diamond model (OLG) and Pension Systems: an international comparison
3. Revision lecture (mock exam description)

4. Seminar 3

## Prerequisites

The course is self-contained in the sense that I will cover all the material during lectures and tutorials. I will also provide detailed explanations of all the mathematical tools and microeconomics concepts used throughout the course. I however assume that you have a good understanding of the IS-LM model and its implications for monetary and fiscal policy; the concept of partial derivative, the rules of differentiation, the principles of constrained maximisation. Finally, I assume that you are familiar with concepts such as utility maximisation, consumer budget constraint, production function, competitive markets.

If you need a refreshment/support on some mathematical concepts, I suggest you to look at the textbook: Simon, C. & Blume, L. "Mathematics for Economists". This book provides detailed explanation of all the mathematical tools that will be necessary during the course. But you can use the mathematical textbook that you fancy the most.

## Teaching methods

**Lectures** are designed to:

- cover together the main points and structure of each topic;
- introduce, apply and analyse the material;
- suggest ways of improving your learning and analytical assessment of the material;
- provide guidance to further research and reading for each topic;

**Seminars** are undertaken in parallel with the lectures and are structured so as to develop your quantitative skills and ability to apply the principles of macroeconomics outside the context in which they are introduced in the lectures.

## Assessment methods

The total mark of the course “Global Macroeconomics” is based on the weighted average from the evaluations of part 1 and 2. The assessments for the course are:

- **Group-Homework** (25% of total mark).

- **Written individual exam** (75% of total mark).

## Textbooks and Reading Materials

Suggested:

- Romer, D. Advanced Macroeconomics, 5th (or earlier) edition, McGrowHill

- Wickens, M. Macroeconomic theory, 2nd edition, Princeton University Press

- Jones, C. Macroeconomics, 4th edition, Norton

Additonal:

- McCandless, G. The ABCs of RBCs, Harvard University Press

- Supplementary readings will be provided for each topic throughout the course

## Semester

Spring semester:

Classes and seminars between the 3 and the 19 of May 2022.

## Teaching language

English