

Advanced Macroeconomics I

Part I: Introduction to Dynamic Macroeconomics and Economic Growth

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The main goal of the course is to introduce students to the workhorse models of dynamic macroeconomic analysis, including the Neoclassical growth model, the overlapping-generations model and models of technological change. These models, forming the core of modern macroeconomics, focus on economic growth and long-run dynamics. The course will thus accomplish two tasks: to provide the basic tools required to study other topics in macroeconomics (that will be developed in the remaining courses of the macro sequence) and to provide some answers to the fundamental question of why economies grow and why some countries are much richer than others. The emphasis will be on methods with some applications.

The main textbook is: Acemoglu D. (2009) "Introduction to Modern Economic Growth" Princeton University Press.

A useful textbook for some of the topics is: Barro R. and X. Sala-I-Martin (2004). "Economic Growth", MIT Press.

1. Introduction to Economic Growth

Basic facts about economic growth, the Solow model

Acemoglu (2009), Ch. 1

Barro R. and X. Sala-I-Martin (2004).

2. General Equilibrium Foundations of Growth Theory

Aggregation, representative household, infinite planning horizon, welfare theorems, time consistency

Acemoglu (2009), Ch. 5

3. Review of Dynamic Programming

Discrete time infinite-horizon optimization, the Bellman equation, contraction mappings, optimal growth in discrete time

Acemoglu (2009), Ch. 6

4. Review of Optimal Control

The maximum principle, transversality conditions, optimal growth in continuous time

Acemoglu (2009), Ch. 7

Barro R. and X. Sala-I-Martin (2004).

5. The Neoclassical Growth Model

Ramsey model, steady-state and transitional dynamics, effect of policies, technical change

Acemoglu (2009), Ch. 8

Barro R. and X. Sala-I-Martin (2004).

6. Growth with Overlapping Generations

Samuelson-Diamond OLG model, dynamic inefficiency and social security, altruism

Acemoglu (2009), Ch. 9

Barro R. and X. Sala-I-Martin (2004).

7. Human Capital

Ben-Porath model, neoclassical growth with physical and human capital, human capital externalities, Nelson-Phelps model

Acemoglu (2009), Ch. 10

8. Endogenous Technical Change

Modeling technical change, growth with expanding product variety

Acemoglu (2009), Ch. 13

Gancia G. and F. Zilibotti (2005). "Horizontal Innovation in the Theory of Growth and Development" in Handbook of Economic Growth, (P.Aghion and S.Durlauf, eds.) Sections 1-2

9. Directed Technical Change

Factor-biased technological change, technology diffusion, productivity differences, barriers to technology adoption, trade and technical change

Acemoglu (2009), Ch. 15

Gancia G. and F. Zilibotti (2008). "Technological Change and the Wealth of Nations" mimeo.