

## **Syllabus Macroeconomics 2024-25 – part I (G. Femminis)**

This module deals with the basics in intertemporal optimization. The instructor (Gianluca Femminis) shall lecture for 18 hours (inclusive of some tutorials)

**Basic growth theory** (5 hours). After a quick reprise of the Solow model, the classic Ramsey model will be analyzed in some details. Attention will be devoted both to the economic intuition for the results and to the embedded analytical issues.

**An introduction to the dynamic programming approach to growth theory** (2 hours). The ‘Bellman principle’ will be introduced and illustrated through examples based on the classic growth models.

**Endogenous growth theory** (3 hours) The most important workhorses in endogenous growth will be succinctly illustrated.

**Dynamic investment model** (2 hours). A simple framework, based on Tobin’s  $q$ , will be used to add persistence to the model.

**Competitive equilibrium with complete markets** (3 hours). A stochastic competitive economy will be analyzed, to highlight the role of complete markets and the meaning of a “representative agent”.

Lectures:

Tue 22<sup>nd</sup> of April 10.00-12.00 (2)

Thu 24<sup>th</sup> of April 9.00 – 12.00 (3)

Mon 28<sup>rd</sup> of April 10.00 – 12.00 (2)

Wed 30<sup>th</sup> of April 10.00 – 13.00 (3)

Tue 6<sup>th</sup> of May 10.00 – 12.00 (2)

Thu 8<sup>th</sup> of May 9.00 – 12.00 (3)

Reharsal / discussion of exercises:

Thu 15<sup>th</sup> of May 9.00 – 12.00 (3)

**Textbooks:** Despite its introductory nature, there is no single textbook for this module. However, lectures will refer to textbooks such as G. McCandless (2008), *The ABC of RBC*, Harvard University Press; D. Acemoglu (2009), *Introduction to Modern Economic Growth*, Princeton University Press, L. Ljungqvist and T. Sargent (2012), *Recursive Macroeconomic Theory* (3<sup>rd</sup> edition), M.I.T. Press; B. Heijdra (2018), *Foundations of Modern Macroeconomics*, Oxford University Press.

### ***Essential references***

Mc Candless, Chapters 1 and 3

Acemoglu, Chapters 2 and 3 (Solow model), 8 (Ramsey model), 11 (simple endogenous growth models).

G. Femminis, “From simple growth to numerical simulations: A primer in Dynamic Programming”, (2016) available at: <https://ideas.repec.org/p/ctc/serie1/def050.html>

Heijdra, Chapter 13,14, 4, 17 (section 4 in particular).

Ljungqvist and Sargent, Chapter 8.

### ***Further readings***

- Abel, A. B. (1982). Dynamic effects of permanent and temporary tax policies in a  $q$  model of investment, *Journal of Monetary Economics*, 9, pp. 353-373.
- Aghion, P., E. Caroli, and C. García-Peñalosa (1999). Inequality and economic growth: The Perspective of the New Growth Theories, *Journal of Economic Literature*, 37, pp. 1615–1660.
- Akgit, U. and W. Kerr (2018) Growth through Heterogeneous Innovations, *Journal of Political Economy*, 2018, 126 pp. 1374-1443.
- Blanchard O. J. and C. M. Kahn (1980). The solution of linear difference models under rational expectations. *Econometrica*, 48, pp. 1305-1311.
- Farboodi M. and L. Veldkamp (2020), Long Run Growth of Financial Technology, *American Economic Review* 110 (8), pp. 2485-2523.
- Peretto, P. (2021). Through scarcity to prosperity: Toward a theory of sustainable growth. *Journal of Monetary Economics* 117, 2021 pp. 243 - 257.
- Glomm, G. and B. Ravikumar (1994). Public investment in infrastructure in a simple growth model, *Journal of Economic Dynamics and Control*, 18, pp. 1173-1187.
- Jones, C. (1995). R&D-based models of economic growth, *Journal of Political Economy* 103, pp. 759–84.
- Lucas, R. J. (1988). On the mechanics of economic development, *Journal of Monetary Economics*, 22, pp. 3-42.
- Mankiw, N., Romer, D. and D. Weil (1992). A contribution to the empirics of economic Growth, *Quarterly Journal of Economics*, 107, pp. 407 – 437.
- Riekhof, M.C. and Noack, F. (2024) Nature's decline and recovery — Structural change, regulatory costs, and the onset of resource use regulation, *Journal of Environmental Economics and Management* 125, Article 102947
- Saint-Paul, G. (2021) Secular satiation. *Journal of Economic Growth* 26, pp. 291–327.
- Temple, J. (1999). The New Growth Evidence, *Journal of Economic Literature* 37, pp. 112–156.