ECON 702A: Macroeconomic Theory, Fall 2019.

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Outline: This half semester class provides an introduction to tools and topics in macroeconomics, centered in particular around economic growth. We will focus on models of dynamic economies with no uncertainty and introduce the tools required to analyze such models. We will pay special attention to the macroeconomic questions and key issues in economic growth that motivate these models. Some of the topics covered include the Solow growth model, growth accounting and development accounting, general equilibrium theory for dynamic economies, dynamic programming and continuous time optimization, and the neoclassical growth model.

I will use *Blackboard* to post announcements, solutions, complementary readings, and grades. Make sure you can access the site and familiarize with it.

Textbook and Readings: The required textbook for this course is Introduction to Modern Economic Growth (2009), by Daron Acemoglu (or "Acemoglu, MEG"). In addition, each topic lists complementary lectures. These are not mandatory and I do not expect you to read them. But please do at least skim through them if you are interested in a particular topic. Some of these complementary lectures are also useful for solving the problem sets.

Grading: There will be no midterm exam. Your grade will depend only on problem sets and your participation in class. You will have 8 problem sets—one per week. Problem sets will become available on *Blackboard* at Wednesdays night, and they are due the next Wednesday at 9pm. Email the solutions to pascual@bu.edu (copied to stpica@bu.edu). You can work in groups, but write your solutions individually. I highly encourage you to typeset your solutions; this will force you to improve your writing and the way you present your work.

Miscellaneous: Unless needed for medical reasons, lets keep the class free of phones, laptops, and tablets.

Topic 1: Macro questions, macro models, and growth facts. Acemoglu MEG, Chapter 1.1-1.4, and 4.

- Macroeconomic questions and macroeconomic models.
- The facts of economic growth.
- *Additional readings:* Dani Rodrik "Economic Rules," Chapter 4. Krueger (2012) "Macroeconomic Theory," Chapter 2; Blanchard "Do DSGE Models Have a Future?" Ricardo Reis (2017) "Is Something Really Wrong with Macro?" Lucas (1988) "On The Mechanics of Economic Development;" Jones (2005) "The Facts of Economic Growth;" Jones and Romer (2010) "The New Kaldor Facts." Jones (2014) "The Macroeconomics of Piketty."

Topic 2: The Solow growth model and Modeling Technology. Acemoglu MEG, Chapter 2.1-2.6.

- The Solow growth model.
- Modeling technology, balanced growth and Uzawa's theorem.

- *Additional readings:* Greenwood, Hercowitz and Krusell (1997) "Long-run Implications of Investment-Specific Technological Change;" Acemoglu (2003) "Labor and Capital-Augmenting Technical Change;" Jones (2005) "The Shape of Production Functions and the Direction of Technical Change;" Oberfield and Raval (2014) "Micro-data and macro-technology;" Krusell and Smith (2015) "Is Piketty's Second Law of Capitalism Fundamental?" Grossman, Helpman, Oberfield and Sampson (2017) "Balanced growth despite Uzawa;" Acemoglu and Restrepo (2018) "Automation and New Tasks: The Implications of the Task Content of Technology for Labor Demand;" Karabarbounis and Neiman (2018) "Accounting for Factorless Income."

Topic 3: Convergence, Growth Accounting, and Development Accounting. Acemoglu MEG, Chapter 3.1-3.6

- Convergence in the Solow model and in the data.
- Growth accounting: the role of technology in explaining growth within countries.
- Development accounting: the roles of technology and capital in explaining country differences.
- *Additional readings:* Young (1995) "The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience;" Jorgensen (2005) "Accounting for Growth in the Information Age;" Baqaee, David, and Emmanuel Farhi (2018) "Productivity and Misallocation in General Equilibrium;" Mankiw, Romer and Weil (1992) "A Contribution to the Empirics of Economic Growth;" Hall and Jones (1999) "Why Do Some Countries Produce so Much More Output Per Worker than Others?" Caselli (2005) "Accounting for Cross-country Income Differences;" Lagakos and Waugh (2013) "Selection, Agriculture, and Cross-Country Productivity Differences;" Lagakos et al. (2018) "Life Cycle Wage Growth across Countries."

Topic 4: Foundations of Neoclassical Growth. Acemoglu MEG, Chapter 5

- The Two Welfare Theorems for economies with infinite commodities.
- Sequential trading formulation.
- Preferences over consumption and the representative household.
- *Additional readings:* Stockey, Lucas and Prescott "Recursive Methods in Macroeconomics," Chapter 15. Mass-Collel, Whinston and Green "Microeconomic Theory," Chapters 4 and 19; Backus, Routledge and Zin (2005) "Exotic Preferences for Macroeconomists."

Topic 5: Dynamic Programming. Acemoglu MEG, Chapter 6

- The recursive principle.
- Value functions.
- Existence and properties of value functions.
- Savings problems in discrete time.
- *Additional readings:* Stockey, Lucas and Prescott "Recursive Methods in Macroeconomics," Chapter 4, 5 and 6.

Topic 6: The Growth Model in Discrete Time. Acemoglu MEG, Chapter 8.6 and 9.1-9.5

- Optimal growth in discrete time.

- Competitive equilibrium in discrete time.
- Taxes and distortions in discrete time.
- Overlapping generations.
- *Additional readings:* Stockey, Lucas and Prescott "Recursive Methods in Macroeconomics," Chapter 4, 5 and 6. King and Rebelo (1993) "Transitional Dynamics and Economic Growth in the Neoclassical Model," Chamley, Christophe (1986) "Optimal taxation of capital income in general equilibrium with infinite lives;" Werning and Straub (2018) "Positive Long Run Capital Taxation:Chamley-Judd Revisited."

Topic 7: Optimal Control. Acemoglu, MEG, Chapter 7

- The maximum principle and saddle path stability.
- Transversality conditions.
- $q-$theory of investment.
- Savings problems in continuous time.
- *Additional readings:* Hayashi (1982)"Tobin's Marginal q and Average q: A Neoclassical Interpretation;" Gutierrez and Philippon (2017) "Investment-less Growth: An Empirical Investigation."

Topic 8: The Growth Model in Continuous Time. Acemoglu, MEG, 7.7, 8.1-8.5 and 8.10

- Optimal growth in continuous time and stability.
- Competitive equilibrium formulation.
- Taxes and distortions in discrete time.
- The supply of labor.
- Perpetual youth models
- *Additional readings:* Boppart and Krusell (2016) "Labor Supply in the Past, Present, and Future: a Balanced-Growth Perspective;" Caselli and Ventura (2000) "A Representative Consumer Theory of Distribution."