

14.452 Economic Growth

October 2021

This half semester class is an ‘advanced introduction’ to economic growth. The primary goal of the course is to familiarize you with a set of fundamental concepts, issues and questions that are central to macroeconomics — issues that you hopefully also find exciting and important. A secondary goal of the course is to further develop your understanding of the key tools of dynamic economics, tools which are useful both in macroeconomics and in other fields. Along the way, we will also encounter some of the key open empirical questions in economic growth.

Course arrangements

The lectures for 14.452 will be taught by Chris Edmond on Zoom. The recitations will be taught by Shinnosuke Kikuchi in person.

- Lecturer: Chris Edmond (cedmond@mit.edu or cedmond@unimelb.edu.au)
 - lectures: **Tuesdays and Thursdays 4:00-5:30 (Zoom link)**
[note new time: see announcement on Canvas]
 - office Hours: Fridays 4:00-5:00 or by appointment
- Teaching Assistant: Shinnosuke Kikuchi (skikuchi@mit.edu)
 - recitation: Fridays 2:30–4:00 (E51-151)
 - office hours: Fridays 5:30–7:00 (E52-448)

There will be no lecture on Thursday November 25 (Thanksgiving). A makeup class will be scheduled the following week. The last lecture will be on Thursday December 9.

Course materials

The textbook for the course is:

- Acemoglu (2009): *Introduction to Modern Economic Growth*. Princeton University Press.

The course will also draw on various articles which will be posted to Canvas.

Assessment

There will be three problem sets (collectively worth 30% of your final grade) and a final exam (worth 70% of your final grade). For each problem set, only one or two questions will be graded.

- Problem set #1 due Friday November 5
- Problem set #2 due Friday November 19
- Problem set #3 due Friday December 3

The final exam will be on Thursday December 16.

LECTURE SCHEDULE

Lecture 1.

Introduction. Brief overview of the stylized facts of economic growth and show the large disparities in output per person across countries. Evolution of the world income distribution.

- Acemoglu (2009): *Introduction to Modern Economic Growth*, chapter 1.
- Jones (2016): The Facts of Economic Growth, *Handbook of Macroeconomics*.

Further background at an advanced undergraduate level:

- Jones and Vollrath (2013): *Introduction to Economic Growth*.

Lectures 2–4.

Solow model. Review of the Solow model. Different types of technological progress. Using the Solow model to interpret the stylized facts of economic growth. Implications for cross-country growth. Growth accounting and development accounting.

- Acemoglu (2009): *Introduction to Modern Economic Growth*, chapters 2, 3, and 4.

Further reading:

- Mankiw, Romer, and Weil (1992): A Contribution to the Empirics of Economic Growth, *Quarterly Journal of Economics*.
- Young (1995): The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience, *Quarterly Journal of Economics*.
- Hall and Jones (1999): Why Do Some Countries Produce So Much More Output per Worker Than Others? *Quarterly Journal of Economics*.
- Klenow and Rodríguez-Clare (1997): The Neoclassical Revival in Growth Economics: Has It Gone Too Far? *NBER Macroeconomics Annual*.

Lectures 5–7.

Neoclassical growth model. Optimal saving in dynamic models. Implications for capital accumulation and growth. Solving a planning problem to find the efficient allocation. Decentralizing the planning problem. Welfare theorems and aggregation.

- Acemoglu (2009): *Introduction to Modern Economic Growth*, chapter 5 and 8.

Lecture 8.

Overlapping generations. Beyond the representative household. Implications for dynamic efficiency. Applications to public debt, ‘ r vs g ’ etc.

- Acemoglu (2009): *Introduction to Modern Economic Growth*, chapter 5 and 9.

Further reading:

- Diamond (1965): National Debt in a Neoclassical Growth Model, *American Economic Review*.
- Blanchard (1985): Debt, Deficits, and Finite Horizons, *Journal of Political Economy*.
- Weil (1989): Overlapping Families of Infinitely-Lived Agents, *Journal of Public Economics*.

Lectures 9–10.

Endogenous growth. Externalities in the neoclassical growth model. Human capital. Asymptotically ‘AK’ economies and their limitations. Endogenous growth due to investment in R&D.

- Acemoglu (2009): *Introduction to Modern Economic Growth*, chapters 10–14 [selections].

Further reading:

- Romer (1986): Increasing Returns and Long-Run Growth, *Journal of Political Economy*.
- Lucas (1988): On the Mechanics of Economic Development, *Journal of Monetary Economics*
- Romer (1990): Endogenous Technological Change, *Journal of Political Economy*.
- Jones (1995): R&D-Based Models of Economic Growth *Journal of Political Economy*.

Lectures 11–12.

Directed technical change and the shape of the production function. Implications of factor-biased technical change. Endogenously biased technical change. Trends in factor shares. Automation. Micro vs. macro production functions.

- Acemoglu (2009): *Introduction to Modern Economic Growth*, chapter 15.

Further reading:

- Acemoglu (2002): Directed Technical Change, *Review of Economic Studies*.
- Acemoglu (2007): Equilibrium Bias of Technology, *Econometrica*.
- Acemoglu and Restrepo (2018): The Race Between Man and Machine: Implications of Technology for Growth, Factor Shares and Employment, *American Economic Review*.
- Allen (2009): Engels’ Pause: Technical Change, Capital Accumulation, and Inequality in the British Industrial Revolution *Explorations in Economic History*.
- Jones (2005): The Shape of Production Functions and the Direction of Technical Change *Quarterly Journal of Economics*.
- Oberfield and Raval (2021): Micro Data and Macro Technology, *Econometrica*.

Lecture 13.

Firm dynamics, allocation, and growth. Beyond the representative firm. Creative destruction and growth. Competition and innovation. Reallocation. Misallocation. Market power.

Selections from:

- Aghion and Howitt (1992): A Model of Growth Through Creative Destruction, *Econometrica*.
- Aghion, Bloom, Blundell, Griffith and Howitt (2005): Competition and Innovation: An Inverted-U Relationship, *Quarterly Journal of Economics*.
- Klette and Kortum (2004): Innovating Firms and Aggregate Innovation, *Journal of Political Economy*.
- Lentz and Mortensen (2008): An Empirical Model of Growth through Product Innovation, *Econometrica*.
- Hsieh and Klenow (2009): Misallocation and Manufacturing TFP in China and India, *Quarterly Journal of Economics*.
- Hsieh, Hurst, Jones and Klenow (2019): The Allocation of Talent and U.S. Economic Growth, *Econometrica*.
- Peters (2020): Heterogeneous Markups, Growth, and Endogenous Misallocation, *Econometrica*.
- Acemoglu, Akcigit, Alp, Bloomm and Kerr (2018): Innovation, Reallocation, and Growth. *American Economic Review*.