

Lectures: Christian Groth. Class: Niklas Brønager.

### **Contents**

We study what factors determine productivity levels and productivity growth in the longer run. We regard productivity as an endogenous variable evolving over time in response to human and physical capital accumulation and research and development. The emphasis is on the industrialized world. We also address models and current issues related to technology transfer, catching-up, natural resources and the environment. There will be an emphasis on formal models (understanding them, being able to evaluate them from both a theoretical and empirical perspective, and to use them to analyse specific questions). Calculus intensity is high.

Themes:

1. How is the world income distribution evolving?
2. Do countries converge towards steady state paths and, if so, how fast?
3. Why do growth rates differ over long periods?
4. How rapidly do marginal returns to produced inputs diminish?
5. How can the emergence of new product qualities and new production methods be modelled?
6. Is continued economic growth compatible with sustainable economic development?
7. With a view to the climate change problem, what should the discount rate be in long-term social investment?

### **Learning outcome**

The aim of the course is to provide students with the skills needed to function as a trained economist working on the problems of economic growth in an international organization, business environment, governmental or non-governmental organization or pursuing a research degree.

By the end of the course the student should be able to:

1. Explain and apply major theoretical growth models and discuss their relevance to the understanding of the economic growth process.
2. Apply the concepts and analytical tools of growth theory to specific questions related to technical change and the evolution of productivity.
3. Account for key empirical regularities concerning technical change and evolution of productivity.
4. Apply knowledge of empirical methods to articles that conduct quantitative analysis in the context of economic growth.
5. Comment in an enlightened way upon key debates among economists concerning factors that matter for economic growth.

A perfect score of 12 at the final exam is given if the student is able to demonstrate - in a clear, concise and convincing way - to have obtained thorough competence in dimensions 1 to 5.

### **Syllabus**

The course does not follow any particular textbook, but uses lecture notes, a few journal articles and selected chapters from:

Acemoglu, D., *Introduction to Modern Economic Growth*, Princeton University Press, 2009.

Jones, C. I., and D. Vollrath, 2013, *Introduction to Economic Growth*, 3rd ed., Norton: New York.

**Teaching and learning methods**

2 hours of lectures and 2 hours of classes per week for 14 weeks.

Completed and accepted midterm paper mandatory for access to the final exam.

**Prerequisites**

Knowledge of basic macro and growth models at a level corresponding to David Romer, *Advanced Macroeconomics*, and of mathematical techniques such as differential equations, phase diagrams, and some optimal control theory.