

# Syllabus:

## Macroeconomics II

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The lecture addresses the sources of economic growth. At the beginning of the course, students are taught in methods of dynamic optimization in continuous time (differential equations, Hamilton approach). In the following, these methods are applied to stockflow models that illustrate the trade-off between consumption and capital accumulation. These models show that optimal investment decisions may increase the level, but not the growth rate of consumption in the long run. Without a positive rate of technological progress, consumption growth peters out in the long run. Throughout the first part of the lecture, the rate of technological progress is exogenously given. In the second part of the lecture, we consider a class of models where the rate of technological progress is determined by (intentional) actions of economic agents. In particular, students are familiarized with the economics of knowledge, e.g. the role of patents and technological spillovers in research & development decisions.

1. **Stylized Growth Facts:** Barro & Martin (2004, Chapter 12) Jones & Vollrath (2013, Chapter 1), Romer (2006, Chapter 1.1), Sørensen & Whitta-Jacobsen (2005, Chapter 2)
2. **The Solow-Swan Growth Model:** Jones & Vollrath (2013, Chapter 2), Romer (2006, Chapter 1), Sørensen & Whitta-Jacobsen (2005, Chapter 3-5)
3. **The Ramsey-Cass-Koopmans Model:** Barro & Martin (2004, Chapter 2), Romer (2006, Chapter 2a and 11.1-3)
4. **The Diamond Model:** Azariadis (1993, Chapter 7.5, 20), Romer (2006, Chapter 2b)
5. **Endogenous Growth I (AK-type Models):** Barro & Martin (2004, Chapter 4)
6. **Endogenous Growth II (Horizontal Innovations):** Barro & Martin (2004, Chapter 6.3), Jones & Vollrath (2013, Chapter 4,5), Maubner & Klump (2013, Chapter D.I.4), Romer (1990), Sørensen & Whitta-Jacobsen (2005, Chapter 9, 10)
7. **Endogenous Growth III (Vertical Innovations):** Aghion & Howitt (1992), Barro & Martin (2004, Chapter 7), Maubner & Klump (2013, Chapter D.I.5)

## References

- Aghion, P. & Howitt, P. (1992), ‘A model of growth through creative destruction’, *Econometrica* **60**(2), 323–351.
- Azariadis, C. (1993), *Intertemporal macroeconomics*, Blackwell Publishing Company, Cambridge, MA.
- Barro, R. J. & Martin, X. S. I. (2004), *Economic growth*, 2nd edn, The MIT Press, Cambridge, MA.
- Jones, C. I. & Vollrath, D. (2013), *Introduction to Economic Growth*, 3rd edn, W.W. Norton & Company, New York, NY.
- Maußner, A. & Klump, R. (2013), *Wachstumstheorie*, Springer-Verlag, Berlin.
- Romer, D. (2006), *Advanced Macroeconomics*, McGraw-Hill, New York, NY.
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- Sørensen, P. B. & Whitta-Jacobsen, H. J. (2005), *Introducing advanced macroeconomics: growth and business cycles*, McGraw-Hill, New York, NY.