Module 1302SMTG00 Growth, Energy, Climate Change

Lecture and Exercise

(Winter 2017/18)

Instructor	PD Dr. Dietmar Lindenberger
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Office Hour	by appointment

Class	Wednesday 16:00-17:30
Exercise	Wednesday 17:45-19:15

Course Requirements

The specialization module Growth, Energy, Climate Change can be chosen by master students only.

Each student will have to write a 60min final exam which accounts for 100% of the final grade. The class is worth 6 ECTS.

For this course, some affinity to mathematical methods is beneficial (although not formally required).

Course Contents

This course attempts an interdisciplinary approach to the issue of economic growth by taking into account its physical foundations, especially the use of the natural resource energy, whose conversion is the key driver of any physical process, economic activity being no exception. Thus natural science foundations, especially the Laws of Thermodynamics, are covered as well as resource economics, which we will derive from economic capital theory. The course also includes models of energy and economic growth, as well as climate policies, e.g. the promotion of renewable energies.

- Natural Science Foundations: Energy Conversion and Entropy Production
- Energy and Resource Economics
- Resources and Capital Theory
- Energy and Economic Growth
- Climate Policies and Renewable Energies

Literature

- R.Kümmel, The Second Law of Economics, Springer, 2011
- R.Perman et al., Natural Resource and Environmental Economics, Pearson Ed. Lt., 2003
- R.Dorfman, An Economic Interpretation of Optimal Control Theory, Am. Ec. Rev., 1969
- C. Hall et al., The need to reintegrate the natural sciences with economics, BioScience, 2001
- Lindenberger et al., Economic growth in the USA and Germany 1960-2013: The underestimated role of energy, Biophysical Economics and Resource Quality, 2017
- S.Borenstein, The Private and Public Economics of Renewable Electricity Generation, Journal of Economic Perspectives, 2012