



University of Cologne

Department of Economics – Chair in Economics, Energy and Sustainability
Prof. Dr. Marc Oliver Bettzüge

Seminar: Energy, Climate Change and Ecological Economics
(SM Seminar: Ausgewählte Fragen der Volkswirtschaftslehre)

Summer Term 2023

Energy and climate change cannot be considered separately. According to the laws of physics, especially the laws of thermodynamics, high-quality energy flows through the economy while being converted into waste energy (heat). Thus, the use of energy necessarily affects the natural environment. Fossil fuels, in particular, are eventually burnt in order to drive economic processes – releasing heat and CO₂-emissions in the process.

The field of *ecological economics* takes such a perspective as its starting point, in particular by explicitly accounting for the fact that the economy has to obey the laws of physics. From this, it postulates that economic theory itself should be consistent with these laws. Therefore, ecological economics treats the (physical part of the) human economy as an instance of the field of ecology. It, thus, is a transdisciplinary science that seeks to integrate economics and ecology. A particular topic in *ecological economics* concerns the view that economic growth and the associated increase in energy throughput cannot be sustained over longer time periods, and that they might ultimately be detrimental for the natural environment, endangering the future human economy. A key concept in *ecological economics* is so-called *steady-state economics* (Herman Daly, 1993). A steady-state economy would aim for a stable level of economic activity without the pursuit of relentless economic growth. This view is in contrast to standard economics, which usually argues that progress and well-being are closely tied to economic growth.

The seminar will explore the energy-climate change-economy nexus from the perspective of *ecological economics*. Correspondingly, it starts from the observation that energy use and economic growth are strongly correlated, and that climate change imposes limits to the use of fossil fuels. Sample questions to be studied comprise e.g.: What does the planetary boundary of climate change imply for the future development of the global economy? Is the transition to a steady-state-economy warranted and possible? If so, what would be the consequences for meeting the needs and/or preferences of a growing world population?

Application

Since only a limited number of students can take part in the seminar, it is advisable to register as soon as possible (first registration period).

Only those placed in the seminar can register for the examination. Thus, if you decide to not take the seminar, please make sure to deregister from the course so your peers are able to enrol for the remaining spots before the exam registration phase ends!

Mode of Examination: combined examination

The final grade consists of:

- 50% Seminar Paper (max 3000 words)
- 35% Presentation (10 minutes)
- 15% Comment to peer presentation (5 minutes)

Both the seminar paper and the presentation have to be passed in order to pass the seminar.

General Requirements

The seminar is designed for advanced students with a specialisation in economics. The seminar participants are expected to gain in-depth insights into their topic independently.

While overall topics will be distributed, students are expected to determine the main focus of their seminar paper themselves. Furthermore, students should deal critically with the contributions of other participants. Active participation in the seminar discussion is expected. We provide a guideline for the preparation of seminar papers. This includes all design requirements.

Further Information

Credits	6
Language	English
Examiner	Prof. Dr. Bettzüge
Organisation	Please contact Frederike Fitza in case you have any questions about the seminar (frederike.fitza@uni-koeln.de)
Schedule	A detailed schedule with all dates relevant for the examination will be provided in the introductory session. Until then, please refer to the information in KLIPS.