Foundations of Ecological Economics

Code: 42407
ECTS Credits: 9

1. The main themes, theories and methods addressed by ecological economics, including: the origins and principles of ecological economics, the idea of welfare and externalities, environmental and climate policy instruments, complex systems, environmental governance and conflicts, environmental and multi-criteria valuation, ecosystem services and the growth/degrowth debate;

2. The basic literature regarding ecological economics;

3. The essential differences between the way environmental problems and solutions are approached in environmental economics and ecological economics;

4. New methods that have been proposed by, and are applied within, ecological and environmental economics, such as environmental valuation methods, multi-scale integrated assessment, and social multi-criteria evaluation.

5. Key issues in the emerging field of degrowth studies.

Skills

- Apply knowledge of environmental and ecological economics to the analysis and interpretation of environmental problem areas.
- Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
- Communicate orally and in writing in English.
• Continue the learning process, to a large extent autonomously.
• Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
• Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise research in environmental sciences.
• Work in an international, multidisciplinary context.

Learning outcomes

1. Adopt a holistic perspective on the relationship between the economy and biophysical systems.
2. Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
3. Communicate orally and in writing in English.
4. Continue the learning process, to a large extent autonomously.
5. Differentiate between the approaches to environmental problems of environmental and ecological economics.
6. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
7. Know the role of the institutions in environmental governance.
8. Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise research in environmental sciences.
9. Work in an international, multidisciplinary context.

Content

The FEE course involves a series of 3-hour lectures organised in four main sub-modules under the responsibility of specific teachers. Some teachers may provide slides in advance through the CV but others may not. All readings need to be found by the student from internet and academic library sources (e.g. Scopus, Web of Knowledge) available on the UAB campus.

Sub-Module 1: Foundations, Policy & Innovation (JvdB)

1. History and principles of ecological economics (comparing with traditional environmental economics)
2. Welfare, markets, externalities and public goods
3. Environmental policy instruments
4. Theories and methods of environmental valuation
5. Economics of climate policy
6. The environment-versus-growth debate

Sub-Module 2: Institutional economics and environmental applications (SV)

7. Introduction institutional economics
8. Basics of game theory and coordination problems
9. Property rights and the theory of the commons
10. Environmental governance: Markets, governments and communities

Sub-Module 3: Methods for integrated assessment (CC)

1. Introduction to analysis of social metabolism
2. Social multi-criteria evaluation - SMCE
3. SMCE in practice
Sub-Module 4: From Steady-State economics to degrowth (CC)

1. Ecological macroeconomics and SystemDynamics
2. Introduction to the core arguments of degrowth
3. Political Ecological Economics
4. Well-being and happiness economics
5. Solidarity economies

Methodology

Lecturers will present a given topic and students will be expected to prepare for the class reading in advance the compulsory readings suggested in the bibliography. Lectures will involve time for questions and answers and for discussion; they might also involve role-play exercises and video-material. In class participation, tests and essays preparation will involve group and individual work, respectively.

Activities

<table>
<thead>
<tr>
<th>Title</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: Directed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lectures</td>
<td>54</td>
<td>2.16</td>
<td>6, 4</td>
</tr>
<tr>
<td>Presentation and discussion in class</td>
<td>8</td>
<td>0.32</td>
<td>3, 6, 2, 4, 9</td>
</tr>
<tr>
<td>Type: Autonomous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 short essays, and tests at the beginning of classes which involve reading the necessary literature to write the essays</td>
<td>60</td>
<td>2.4</td>
<td>8, 6, 4, 9</td>
</tr>
<tr>
<td>Reading articles, books and studying for each of the given lectures and the final exam</td>
<td>100</td>
<td>4</td>
<td>7, 1, 5, 6, 4, 9</td>
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</tbody>
</table>

Evaluation

Students will be assessed on the basis of (a) a written, closed-book exam; b) written essays, and c) their participation in class. In particular, they will be assessed based on:

- **Presence and participation in lectures**: at least 75-80% of all lectures; absence should be justified.
- **A final exam**, contributing to 50% of the final mark. It will cover aspects of each module of the course. Students will have limited space to answer each of these questions and will have to show that they have understood and mastered key concepts and ideas introduced during the course. The contributing teachers will evaluate the exam together.
- **Written exercises and class tests**

1) A 500-words personal statement corresponding to the last lecture of the course, focused on the environment-versus-growth debate, and to be submitted in class and to Jeroen van den Bergh, contributing to 10% of the final mark.

2) A 1000-words argumentative essay discussing critically a statement related to the sessions 7-10, to be submitted by email to Sergio Villamayor, and contributing to **20% of the final mark**; the question (the statement to be discussed will be formulated in session 10)
3) Team-based closed-answer tests to be answered at the beginning of classes and based on the mandatory readings of the corresponding classes, and contributing to 20% of the final mark:

**Evaluation activities**

<table>
<thead>
<tr>
<th>Title</th>
<th>Weighting</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 short essays and tests at the beginning of classes</td>
<td>50%</td>
<td>0</td>
<td>0.0</td>
<td>8, 3, 7, 5, 6, 2, 4, 9</td>
</tr>
<tr>
<td>Final Exam</td>
<td>50%</td>
<td>3</td>
<td>0.12</td>
<td>8, 3, 7, 1, 5, 6, 2, 4, 9</td>
</tr>
</tbody>
</table>

**Bibliography**

The literature marked with (*) is obligatory and must be read prior to each lecture since it will be the basis for the respective class. The other literature mentioned is voluntary background reading but students are encouraged to read as much as they can.

1. **History and principles of Ecological Economics**


2. **Welfare, markets, externalities and public goods**

(*) Kahn, J.R. 2004. *The Economic Approach to Environmental and Natural Resources*. 3rd edition, Thomson/South-Western, Fort Worth, Mason, Ohio. ch. 2; & ch. 4, section "What is Value".


3. **Environmental policy instruments**


4. **Theories and methods of environmental valuation**

(*) Perman et al., Valuing the Environment, Chapter 4 in *Natural Resource and Environmental Economics*


5. **Economics of climate policy**
http://news.bbc.co.uk/2/shared/bsp/hi/pdfs/30_10_06_exec_sum.pdf


Responses to / debate on the Stern review (http://www.hm-treasury.gov.uk/6520.htm).


6. The environment-versus-growth debate


Introduction institutional economics


8. Basics of game theory and coordination problems


9. Property rights and the theory of the commons


10. Environmental governance: Markets, governments and communities


11. Analysis of Social metabolism: MEFA, MuSIASEM, MultiEROI


(*) Tello, E. et al 2017. Opening the black box of energy throughputs in farm systems: a decomposition analysis between the energy returns to external inputs, internal biomass reuses and total input consumed (the Valles county, Catalonia, c.1860 and 1999). *Ecological Economics* 121, pp.:160-174


12. Social multi-criteria evaluation - SMCE


13. SMCE in practice

A Multi Criteria exercise will be practiced by student teams in class. Information about the exercise will be uploaded on the platform.

14. Ecological Macroeconomics and System Dynamics


Highlights of the lecture:

We present and critically discuss the green growth approach.
We introduce and investigate the ecological macroeconomics literature
Why system dynamics is a powerful tool for policies evaluation
A post-growth model of Ecological Macroeconomics (EUROGREEN)

15. From Steady State to Degrowth - introduction of the core arguments of degrowth


16. Political Ecological Economics - integrating the ideas of political ecology to those of ecological economics


Kallis, G. Indefense of degrowth. Opinions and minifiestos. (Chapters 2 and 3) https://indefenseofdegrowth.com

17. Well-being and happiness economics

(*) Sekulova F., van den Bergh J.C.J.M. 2014. Climate change, income and happiness: An empirical study for Barcelona". Global Environmental Change 23(6), pp.: 1467-1475


18. Solidarity economies

