Course Outline 2013-2014

Environmental Economics and Natural Resources Group
De Leeuwenborch building
Hollandseweg 1
6706 KN Wageningen
The Netherlands

Environmental Economics In Practice

Course code ENR-21806
Credits 6
Period 4
Language English
Contact person Rolf Groeneveld
Lecturer(s) Rolf Groeneveld, Petra Hellegers
Examiner(s) Rolf Groeneveld
Secretariat Gré Schurink, Leeuwenborch N1107, tel. 0317-484255
First lecture 18 February 2014, 13.30 - 15.15, C83
Exam 13 March 2014, 13.30 - 16.30, C81
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2. Learning outcomes and exam
3. Prerequisites
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1 Introduction

This course deals with a selection of current issues in environmental economic policy from both a theoretical and a practical point of view. What does economics say about, for example, environmental technology, or fisheries? What policies does it recommend, and what policies do governments actually implement?

This course aims to give students insight into the role of environmental economics in the development of environmental policies. We will focus on a selection of topics that are regularly subject of current debates. For each topic, the course includes a lecture on the economic theory behind the topic and a guest lecture about how the topic is dealt with in real policies. The guest lectures will be given by experts from outside the university.

Students also write a literature review of a topic of their own choice. This literature review can help them prepare for their BSc thesis.

2 Learning outcomes and exam

The learning outcomes and examination are given in the table below.

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>Examination</th>
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</thead>
<tbody>
<tr>
<td>Explain for a selection of the most important environmental problems what economic mechanisms underlie these problems</td>
<td>Written exam</td>
</tr>
<tr>
<td>Compare the effectiveness and efficiency of the most widely used policy instruments in these issues, according to economic theory as well as in their practical application</td>
<td>Written exam</td>
</tr>
<tr>
<td>Explain the different steps in a cost-benefit analysis and its role in environmental policy</td>
<td>Written exam</td>
</tr>
<tr>
<td>Write a literature review on an environmental-economic topic of their own choice</td>
<td>Literature review</td>
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The final grade will depend on the literature review (50%) and a written exam (50%). The grade for both parts should be at least a 5.5.

3 Prerequisites

Students are expected to have a basic background in economics. Preferably they have completed Environmental Economics and Policy (ENR-20306) or Environmental Economics for Environmental Sciences (ENR-21306).

4 Activities

4.1 Lectures

The course deals with four topics relevant to current environmental economic policy (see “Themes” for a description of the topics). All topics are discussed in two lectures each:

- A theoretical lecture to explain the economic theory underlying the topic;
- A guest lecture about the practical dimensions of the topic. Each guest lecture consists of a lecture of 45 minutes, and 45 minutes of questions and discussion. Participation in the guest lectures is compulsory.

Students are required to prepare the guest lectures at home by doing the following:

- Read the relevant literature;
- Participate actively in the discussion

4.2 Literature review

The literature review has the following objectives:

- Students can familiarize themselves with a specific environmental policy issue, and the scientific literature on that issue
- Students learn how to search for scientific literature, how to read and interpret scientific journal articles, and how to organize the information such that they can grasp the overall picture
- Students identify an interesting research question that they might investigate in their BSc thesis

Students write a literature review on a topic of their own choice. The literature review must address at least the following questions:

- Why is this an important topic?
• What are the most important economic publications?
• What are the most relevant research questions?
• What are the most widely used methods?
• What are currently the most important open research questions?
• What could be an interesting, but also realistic, research question for a BSc thesis?

The topic does not have to be one of the topics discussed in the course; students are free to choose their own environmental-economic topic.

The first lecture will explain four methods to organize scientific literature:
• Make a skeleton of the review paper and insert references to relevant publications where appropriate;
• Assign publications to one of four groups: (1) assessment of the problem; (2) driving forces of the problem; (3) optimal management of the problem; or (4) policy instruments to address the problem
• Make a table in a spreadsheet program to list publications in chronological order, including such characteristics as (1) objective of the research; (2) method used; (3) where do the data come from; (4) main findings
• Make a table in a spreadsheet program to group publications according to characteristics relevant to the topic

The following feedback moments are included in the course program:
• Students are required to hand in a draft skeleton of their literature review at the end of the first week
• Students are expected to summarize the literature they find in a chronological table, and have a draft table ready for the lecture of 25 February
• At the lecture of 25 February students will receive feedback on the draft skeleton of their review, and during the lecture we will compare and discuss literature tables made by students.

Literature reviews must be handed on 1 March before 17.00.

5 Themes

5.1 Marine resource management

For decades ‘Marine resource management’ used to be equivalent to ‘fisheries management’. Nevertheless, overfishing is still prevalent in many areas. At the same time, the topic is becoming broader as “Ecosystem-based Management” is gaining ground.

Our guest lecturer will be Martin Pastoors (Wageningen IMARES).

Literature
To understand the basic concepts in fisheries economics you are expected to study an introductory text, preferably any of the following:
• Chapter 17 in Perman et al. (2011). Natural Resource And Environmental Economics, 4th edition, Pearson Education, Essex, UK. In the 3rd edition (2003) it is also Chapter 17. You may have bought the book already (you should have!) for other environmental economics courses like ENR-20306 (Environmental Economics and Policy) and ENR-31306 (Economics and Management of Natural Resources).

The following articles are recommended reading. They deal with current debates in fisheries economics.

5.2 Water economics

Water is one of our most abundant and at the same time most scarce resources. Whereas some countries have too much of it, other countries are even fighting over it. An increasing number of governments recognize for instance the need to reform their water allocation policies and mechanisms, because of the already present over-allocation of water, increasing competition for water due to increasing water and energy demand and due to increasing variability in availability of water as a result of climate change. Reforms are particularly complex and should take place in an organized way.

The guest lecturer will be Christian Siderius (Alterra).

Literature
• TBA
5.3 Biodiversity

Biodiversity is a broad term covering such topics as endangered species, species richness, and ecosystem services. Protection of biodiversity, for example through nature reserves, has a range of benefits to individuals and societies. To design effective and efficient conservation policies, however, you need to have sufficient understanding of the incentives at work.

The guest lecturer in this theme will be Arjan Ruijs (Netherlands Environmental Assessment Agency).

Literature

For this lecture you study a selection of output from the Millennium Ecosystem Assessment (MEA). The MEA was a global study into the state of the world's ecosystems, their worth to society, and the societal drivers of their decline. You can download reports (chapter by chapter) of the MEA from the MEA website. More specifically, reading material includes the following chapters from the Current State & Trends Assessment report:

- Ch 1 Conceptual Framework
- Ch 2 Analytical Approaches for Assessing Ecosystems and Human Well-being (2.1, 2.3, 2.4)
- Ch 3 Drivers of Change
- Ch 4 Biodiversity (skim most, but be sure to read 4.3)

Recommended reading:

- An article in The Economist will be made available through Blackboard that gives an insightful explanation of how market forces are used to protect biodiversity
- TEEB (The Economics of Ecosystems and Biodiversity) can be seen as an economic follow-up to the MEA. The Synthesis Report of TEEB (link on Blackboard) makes interesting reading.

5.4 Cost-Benefit Analysis

Cost-Benefit Analysis is a widely used method to evaluate policies on their benefits and costs to individuals and society at large. There will not be a guest lecture as this is more a method than a policy issue.

Literature


5.5 Energy and innovation

Fossil fuels, such as coal, oil and natural gas, are non-renewable. They are limited in supply and will one day be depleted. Innovation is required for achieving more efficient use of energy and for the development and increased production of renewable energy technologies such as solar energy, wind power and moving water. Burning fossil fuels creates carbon dioxide, the number one greenhouse gas contributing to global warming. The impact of global warming on the environment is extensive and affects many areas. But there’s also the great dangers posed to natural ecosystems that result from collecting fossil fuels, particularly coal and oil.

The guest lecturer will be Erik Schmiemann (Ministry of Economic Affairs).

Literature

### Schedule

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Time</th>
<th>Room</th>
<th>Subject</th>
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<tr>
<td>24</td>
<td>Tu 18-2</td>
<td>13.30 – 15.15</td>
<td>C83</td>
<td>Introduction to the course</td>
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<tr>
<td></td>
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<td></td>
<td>Methods to make a literature review</td>
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<td></td>
<td>We 19-2</td>
<td>10.30 – 12.15</td>
<td>C83</td>
<td>Lecture: Economics of marine resources (RG)</td>
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<tr>
<td></td>
<td>Th 20-2</td>
<td>13.30 – 15.15</td>
<td>C83</td>
<td>Guest lecture Martin Pastoors (Wageningen IMARES)</td>
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<tr>
<td></td>
<td>Fr 21-2</td>
<td>10.30 – 12.15</td>
<td>C83</td>
<td>Lecture: Economics of water management (PH)</td>
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<tr>
<td></td>
<td>Fr 21-2</td>
<td>17.00</td>
<td></td>
<td>Deadline for structure literature review</td>
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<tr>
<td>25</td>
<td>Tu 25-2</td>
<td>13.30 – 15.15</td>
<td>C83</td>
<td>Feedback on structure literature review</td>
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<td>Discussion of literature tables</td>
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<td>We 26-2</td>
<td>10.30 – 12.15</td>
<td>C83</td>
<td>Guest lecture Christian Siderius (Alterra)</td>
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<td></td>
<td>Th 27-2</td>
<td>13.30 – 15.15</td>
<td>C83</td>
<td>Lecture: Economics of biodiversity (RG)</td>
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<tr>
<td></td>
<td>Fr 28-2</td>
<td>10.30 – 12.15</td>
<td>C83</td>
<td>Guest lecture Arjan Ruijs (Netherlands Environmental Assessment Agency)</td>
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<tr>
<td>26</td>
<td>Tu 4-3</td>
<td>13.30 – 15.15</td>
<td>C83</td>
<td>Lecture: Cost-Benefit Analysis (RG)</td>
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<td></td>
<td>We 5-3</td>
<td>10.30 – 12.15</td>
<td>C83</td>
<td>Lecture: Economics of Energy (PH)</td>
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<td></td>
<td>Th 6-3</td>
<td>13.30 – 15.15</td>
<td>C67</td>
<td>Guest lecture Erik Schmiemann (Council for the Environment and Infrastructure)</td>
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<td></td>
<td>Fr 7-3</td>
<td>10.30 – 12.15</td>
<td>C83</td>
<td>Presentations of literature reviews</td>
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<tr>
<td></td>
<td>Fr 7-3</td>
<td>17.00</td>
<td></td>
<td>Deadline literature reviews</td>
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<td></td>
<td>Th 13-3</td>
<td>13.30 - 16.30</td>
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<td>Exam</td>
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<tr>
<td></td>
<td>Tu 12-8</td>
<td>13.30 - 16.30</td>
<td>C70</td>
<td>Re-exam</td>
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