

**MARKETS AND THE ENVIRONMENT**

Lecture in the BSc program in Economics

Course language: English

Prerequisites: Microeconomics A and B, Principles of Econometrics

Examination: Written final exam, 90 min

ECTS-Credits: 7

Instructors:

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Class dates:	Monday, 10:15 a.m. – 11:45 a.m., S 031	Lecture
	Wednesday, 13:45 p.m. – 15:15 p.m., S 031	Tutorial

Exam date: Saturday, June 9, 2018

**Syllabus****Course description:**

This course introduces advanced undergraduate students in economics to the field of environmental and natural resource economics. It presents the theory of optimal management of renewable and non-renewable resources and introduces the students to different forms of environmental regulation, giving particular regard to market based instruments such as tradeable pollution rights. Different concepts for the valuation of non-market amenities such as environmental quality are presented, including hedonic pricing, travel cost methods and contingent valuation. Their use is exemplified with an introduction to environmental cost-benefit analysis. Finally, the course touches on issues associated with the regulation of transboundary pollution.

## Competences and skills that will be acquired and learning results:

### Knowledge skills

- capacity to understand and analyze problems in environmental economics
- capacity to evaluate the environmental consequences of economic activity

### Learning activities and methodology

Students will acquire the knowledge and technical skills set out above by following the lectures, by solving problems that will be corrected jointly in class, and by attending tutorials in which problems are solved at the white board. Likewise, part of the skills will be acquired by the students through individual research.

The educational activities are aimed at enabling the students to use the tools of economic analysis acquired in previous classes and to apply them to the regulation of environmental problems. The teaching method is interactive and based on the use of computer software (spreadsheet and econometric applications) for the analysis of case studies related to environmental protection and to natural resources management.

Evaluation of the students will be based primarily on the grade obtained in a final exam. Extra credit is given to students who turn in voluntary homework.

### Textbooks

- [K] Kolstad, Charles: Intermediate Environmental Economics. Oxford University Press. International 2nd Edition.
- [T] Tietenberg, Tom: Environmental and Natural Resource Economics. Addison Wesley. *Any edition will do, chapter numbers below refer to the sixth edition.*
- [P] Perman, Roger, Yue Ma, Michael Common, David Maddison, James McGilvray: Natural Resource and Environmental Economics. Addison Wesley. 4<sup>th</sup> edition.

## Course Program and Readings

*N.B. Additional readings are marked with an asterisk (\*).*

### 1. Introduction

[K] Ch. 1, 4, 5, 20.I

[\\*Solow, R. \(1992\). Sustainability: An Economist's Perspective. \*National Geographic Research and Exploration\*, 8: 10-21.](#)

### 2. Natural Resource Management

#### 2.1. Non-renewable resources

[T] Ch. 5, 7, 8 & 9

[Livernois, J. \(2009\). On the Empirical Significance of the Hotelling Rule. \*Review of Environmental Economics and Policy\*, 3\(1\): 22-41.](#)

[\\*Maugeri, L. \(2009\). Understanding Oil Price Behavior through an Analysis of a Crisis. \*Review of Environmental Economics and Policy\*, 3\(2\):147-166.](#)

#### 2.2. Renewable resources

[T] Ch. 12 and 13

[Olmstead, S. \(2010\). The Economics of Managing Scarce Water Resources. \*Review of Environmental Economics and Policy\*, 4\(2\): 179-198.](#)

### 3. Instruments for correcting market failures

[K] Ch. 11, 12, 13 & 16

[Goulder, L. and I. Parry \(2008\). Instrument choice in Environmental Policy. \*Review of Environmental Economics and Policy\*, 2\(2\): 152-174.](#)

### 4. Valuing the environment

[K] Ch. 8-10

[Portney, P.R. \(1994\). The Contingent Valuation Debate: Why Economists Should Care. \*Journal of Economic Perspectives\*, 8: 3-17.](#)

### 5. International Aspects

[K] Ch. 19, [P] Ch. 9 and 10

[Barrett, S. \(2003\). \*Environment and Statecraft\*. Oxford University Press, Oxford, UK. Chapters 3.1-3.9, 3.14, 3.20](#)

Weekly planning (changes compared to previous version in red!)

WEEK	DATE	DESCRIPTION	LECTURES	TUTORIAL
1	12.2.	Introduction to environmental economics, growth and sustainability Organization of the class	X	
1	14.2	<i>No class</i>		
2	19.2.	Non-renewable resources: Hotelling's model	X	
2	21.2.	Problem sheet 1: Micro review		X
3	26.2.	Non-renewable resources: Monopoly and recycling; <b>Renewable resources: concept and growth, static model, free entry</b>	X	
3	28.2.	<b>Problem sheet 2: Hotelling's model</b>		X
4	5.3.	<b>Renewable resources: Dynamic model; forests; species extinction, pollution and other externalities, fishery policy.</b>	X	
4	7.3.	<b>Problem Sheet 3: Hotelling, monopoly and recycling</b>		X
5	12.3.	<b>Problem Sheet 4: Renewable resources</b> <b>Homework 1 is due in class</b>		X
5	14.3.	Solution of Homework 1		X
6	19.3.	Problem Sheet 5: Computer-based case study: Optimum level of a renewable resource. <i>Computer class room 158 in L7, 3-5</i>		X
6	21.3.	Pollution regulation: Pigouvian taxes and subsidies, <del>quotas, comparison taxes vs. quotas.</del>	X	
		<b>EASTER BREAK</b>		
7	9.4.	Pollution regulation: <b>quotas, comparison taxes vs. quotas</b>	X	
7	11.4.	Pollution regulation: <b>Coase theorem, tradable emission permits</b> Problem sheet 6: Pollution regulation	X	X
8	16.4.	Emissions trading game <b>Played online in computer class room 158 in L7, 3-5; Homework 2 is due in class</b>		X
8	18.4.	Review emissions trading game Problem sheet 6: Pollution regulation		X
9	23.4.	<del>Pollution regulation: Kyoto Protocol, European Emissions Trading Scheme</del> <b>Solution of Homework 2</b>		X
9	25.4.	<del>Review emissions trading game</del> Valuation: Revealed preferences, hedonic pricing, travel cost method	X	
10	30.4.	Problem sheet 7: Contingent valuation		X
10	2.5.	Valuation: Hedonics, stated preferences, contingent valuation <b>Homework 3 is due in class</b>	X	
11	7.5.	<b>Computer-based case study: Hedonic pricing</b> <b>Computer class room 158 in L7, 3-5</b>		X
11	9.5.	<b>Solution of Homework 3</b>		X
12	14.5.	International aspects of environmental regulation	X	
12	16.5.	Problem Sheet 8: International aspects of environmental regulation		X
13	23.5.	Multilateral environmental agreements <b>Homework 4 is due in class</b>	X	
14	<b>28.5.</b>	Solution to Homework 4; Q&A		X
14	<b>30.5.</b>	Review of selected topics (upon request)		X