



STUDY PROGRAMME

ECO

ACADEMIC YEAR

2019-2020

SEMESTER

2

COURSE TITLE

THE ECONOMICS OF EU ENVIRONMENTAL AND CLIMATE CHANGE POLICY

COURSE PROFESSOR

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COURSE ASSISTANT

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NATURE OF COURSE

OPTIONAL

LANGUAGE OF INSTRUCTION

ENGLISH

ECTS CREDITS

4.5

1. COURSE OBJECTIVES

The purpose of this course is to provide students with a thorough understanding of mechanisms underlying market failures caused by externalities and public goods. After the diagnosis, several therapies will be reviewed consisting of environmental policy instruments with a focus on price based instruments (emission taxes, subsidies, and tradable permit programs). The theoretical analysis will be complemented with an introduction to the economics of climate change and environmental agreements. After this course, students will understand how theoretical findings are tested and applied in the 'real world' by using case studies from the EU Emissions Trading System (ETS), the EU climate policy and the international climate change negotiations.

2. LEARNING OUTCOMES

At the end of this course, the student will be able to:

- better understand the theoretical foundations of environmental and climate change economics;
- determine, from a society point of view, the desired level of environmental quality;
- determine how emission reduction efforts should be allocated across polluters in order to minimize compliance costs?
- evaluate advantages and disadvantages of different environmental policy instruments;



- identify trade-offs in the design of climate regulations and environmental agreements and evaluate them from an economic point of view;
- combine his/her knowledge of economic concepts with a perspective on how 'theory is applied in practice' at EU level;
- indicate EU achievements and failures regarding EU climate policies.

The learning outcomes for this course tie in with the following learning outcomes for the European Economic Studies programme:

- Understand the normative assumptions, implications and limitations of economic theory and economic policy making.
- Use economic theory to assess current problems and policies.
- Recognise the importance of empirical foundation for knowledge acquisition and evidence-based policies and use quantitative techniques and other empirical methods to evaluate theoretical knowledge.
- Describe, explain and illustrate the usefulness and limitations of economic theory applied to economic conditions and problems in Europe.
- Recognise, analyse, explain and critique economic developments and economic policies in Europe.

3. COURSE CONTENTS

Indicative outline

1. Why environmental problems cause markets to fail
In the first session the student learns why unregulated markets fail to achieve socially optimal outcomes because of externalities, public good, asymmetric information etc. In this session we diagnose the causes of environmental problems in a micro economic framework.
2. A brief introduction to monetary valuation of environmental externalities
In this session we will review the theoretical background (concepts like willingness-to-pay, willingness-to-accept, stated and revealed preference methods) and the main empirical methodologies (contingent valuation, hedonics, travel cost, ...) to estimate monetary valuations for non-market goods and environmental externalities.
3. A primer to environmental policy instruments
This session focusses on possible therapies. Which policy instruments can governments use to correct for market failures caused by environmental problems? The student learns about the virtues of price based instruments over command-and-control solutions.
4. Environmental policy instruments in the real world
After celebrating in the previous session the virtues of price based instruments we will add some realism to the models. We will focus on other criteria like market power, uncer-



tainty, monitoring & enforcement, equity and political considerations and the so-called green paradox.

5. Tradable emission permits: clean or hot air for sale?
Tradable emission permits are used more and more to fix pollution problems. In this session the student will trade permits himself and learn about the challenges to make permit trading work as a cost efficient solution to environmental problems.
6. Introduction to climate economics
In this session the student will learn about the physics of climate change, its possible impacts and damage costs, and strategies to avoid and to cope with it. In brief we will apply the concepts that we introduced in the previous sessions to one of the biggest environmental problems we are faced with.
7. EU Climate and energy policy framework [guest speaker if possible]
The EU climate and energy framework will be presented thereby identifying the economic rationale of the package(s). Principal spotlight will be on how member state, industrial, trade unions and other interests have been able to change the package(s) to its current shape.
8. The EU Emission Trading Scheme (EU ETS)
In this session we will zoom in on the EU ETS. We will briefly outline its institutional details and review the evaluations of its effectiveness, virtues and problems. The session will be concluded with a discussion on the future of the ETS.
9. International climate negotiations
In this session the student will learn why, from an theoretical point of view, it is so difficult to reach an effective international agreement on transboundary pollution problems like climate change. This session will also review and explain the history of the climate change negotiations to identify the political and economic drivers behind it. It will then identify the economics of the various steps and how the politics have shaped it. In a last step the course will highlight the results of the Paris 2015 negotiations and subsequent implementation steps.
10. Feedback session on individual assignments
During this session, students are required to briefly present the research question, literature review and preliminary conclusions of their individual paper. The professor and fellow students will give feedback on the work presented.

4. TEACHING METHOD

Contact hours: 30h. Students will have to solve exercises during and in-between classes. Students are expected to participate actively in the course and express their views. Prior reading of the material is essential.

Assignment and presentation: Students will have to write and submit an individual analysis on the topic of their choice, provided it falls into the framework of the course. The professor



will suggest some topics but students can also suggest topics of their own. During the first weeks, topics will be agreed upon individually between students and professor. A mid-term session is organised in which students have to present their progress and preliminary findings in class. The professor and fellow students will give feedback on the work presented.

5. COURSE MATERIAL

Lecture notes (PPT presentations) will be distributed for each session.

There is no single textbook for this course. Below is a list of suggested readings.

During classes, additional reading list of compulsory and optional readings will be made available.

General textbooks on Environmental Economics

Hanley, N., Shogren, J.F. & White, B. (2019), Introduction to Environmental Economics - 3rd edition (Oxford University Press, Oxford & New York)

General, informal and gentle introduction to environmental economics

Hanley, N., Shogren, J.F. & White, B. (2006), Environmental Economics in theory and practice - 2nd edition (Palgrave macmillan, Basingstoke & New York)

More formal (micro economics and game theory), see chapters 3, 4 & 9

Kolstad, C.D. (2011), Intermediate Environmental Economics (Oxford University Press, Oxford & New York)

More formal (micro economics and game theory), see chapters 4, 5, 11 & 12

Phaneuf, D.J. & Requate, T. (2017), A course in Environmental Economics, Theory, Policy, and Practice (Cambridge University Press, Cambridge UK)

More formal micro economic treatment of subject, very complete. Excellent reference work.

Perman, R., Ma, Y., McGilvray, J. & Common, M. (2003), Natural Resource and Environmental Economics – 3rd edition (Pearson Education, Boston)

More formal micro economic treatment of subject, very complete. Excellent reference work.

Tietenberg, T. & Lewis, L (2014), Environmental and Natural Resource Economics – 10th edition (Pearson Education, Boston)

General, informal introduction to environmental economics, see chapters 2, 14, 15 & 16

EU climate change policy and Emission Trading Scheme ETS:

Delbeke, J. and Vis, P. (eds)(2015). EU Climate Policy EXPLAINED (Routledge, London & New York)

Ellerman, A.D., Convery, F.J., de Perthuis, C. (2010), Pricing Carbon, The European Union Emissions Trading Scheme (Cambridge University Press, Cambridge)



General climate change and climate economics

Heal, G. (2017), The Economics of the Climate, *Journal of Economic Literature* **55**, 1046–1063

IPCC (2014), Climate Change 2014: Synthesis Report. see: <https://www.ipcc.ch/report/ar5/>

Sinn, H.-W. (2012), The Green Paradox, A Supply-Side Approach to Global Warming (MIT Press, Cambridge MA, USA)

Stern, N. (2007), The Economics of Climate Change – The Stern Review (Cambridge University Press, Cambridge), see: http://www.hm-treasury.gov.uk/sternreview_index.htm

Tol, R.S.J. (2014), Climate Economics (Edward Elgar, Cheltenham UK)
see also the accompanying website: <https://sites.google.com/site/climateconomics/>

EVALUATION

- Written examination at the end of the course: it counts for 80% of the mark. The course will be evaluated with an open-book exam, using different kinds formats (questions on theory, practical case, article commentary and essay) Students may also bring dictionaries.
- Assignment & presentation: 20% of the mark.
- The resit exam is written and counts for 100% of the final mark for the course.