

## Environmentals & Resource Economics

Course title - Intitulé du cours	Environmentals & Resource Economics
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	ANDERSSON - HERRERA - ROSENDAHL
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	Anglais

### **Teaching staff contacts - Coordonnées de l'équipe pédagogique :**

Henrik Andersson

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### **Course's Objectives - Objectifs du cours :**

This course is divided into three parts which will be taught by three different professors.

The first part of the course will focus on economic policies related to environmental problems. It is well known that free markets will fail to provide the optimal provision of environmental goods and services (including mitigating negative effects of environmental pollution). Two examples of such market failures are externalities and the fact that many environmental goods are public goods that will not be provided in a free market. This part of the course will provide an introduction to different economics policies and instruments such as benefit cost analysis, pricing of externalities, etc.

The second part of the course will introduce an in depth analysis of one the instruments to reduce carbon emission by means of a case study. Next, we will explore two questions that are important when evaluating environmental policies: valuation of mortality risk and of future consequences. The first concerns how much it is worth spending to reduce toxic pollution and the second concerns how much it is worth spending now to reduce future harms. For example, the social cost of carbon is the present value of the monetarized damages caused by one more ton of CO<sub>2</sub> emitted today.

The third part of the course will give an introduction to the field of energy economics. After defining key concepts in energy markets, the course will look more into the characteristics of the oil and electricity markets. We will further discuss the main economics of depletable resources (Hotelling) and look at the interconnection of energy economics and the environment, in particular climate change and the impacts of climate policy on energy markets.

#### COURSE OUTLINE

1) An Introduction to Environmental Policies (H. Andersson), 15 hours

- a) The rationale for intervention
- b) Policy instruments
- c) Risk and uncertainty
- d) Non-market valuation and cost-benefit analysis

2) Discounting, uncertainty, and health risks (D. Herrera), 7.5 hours

- a) Tax-based instrument to reduce carbon emissions: a case study analysis
- b) Discounting the future, the Ramsey rule
- c) Valuing mortality and morbidity risk

3) An introduction to Energy Economics and (K.-E. Rosendahl), 7.5 hours

- a) Introduction
- b) The global oil market and electricity markets
- c) Fossil fuels: Non-renewable resources
- d) Interactions between energy and the environment

#### **Prerequisites - Pré requis :**

Good understanding of intermediate microeconomics.

#### **Grading system - Modalités d'évaluation :**

The first and third part of the course ("Environmental Policies" and "Energy Economics") will be evaluated by a written exam. The second part ("Discounting, uncertainty, and health risks") will be evaluated by a take-home group exercise. Attendance in the lectures is expected and mandatory for the second part of the course.

#### **Bibliography/references - Bibliographie/références :**

Students will be informed about the required reading at the start of the course and will in addition to any textbook consist of published scientific articles. Lecture notes, required readings, except textbooks, and any exercises will be made available through the Moodle course page.