Environmental and Ecological Economics (250678)

General Information

School	ETSECCPB
Departments	Departament d'Enginyeria Agroalimentària i Biotecnologia (DEAB)
Credits	5.0 ECTS
Programs	MÀSTER UNIVERSITARI EN ENGINYERIA AMBIENTAL (pla 2014)
Course	2020/21

Main teaching language at each group

- Group 10Q2 language pending definition (Q2)

Faculty

Responsible Faculty: Oscar Alfranca Burriel
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Objectives of Education

CE01 - Apply scientific concepts to environmental problems and their correlation with technological concepts.
CE08-Dimension unconventional systems and advanced treatment and raise their mass balance and energy.

Explore scientific concepts and technical principles of quality management of the receiving means, atmosphere, water and soil, and applied to problem solving.
Explore scientific concepts and technical principles of management and treatment of gaseous emissions, water supply, sewage and waste and remediation techniques for groundwater and contaminated soils.
Sized systems for the treatment of major pollutants vectors in specific sectors of activity.
Interprets rules, identifies goals, assesses technical alternatives proposed unconventional solutions and priority actions.

Introduction to Environmental Economics. Natural Resources and Environment.

· Welfare Economics and the Environment.
· Market failures and public policy: Externalities and public goods.
· Natural resources and production factors.
· Renewable resources and nonrenewable resources.
· Introduction to Ecological Economics

Economic Policy and Regulation.

· Environmental Economic Policy: Taxes and subsidies.
· Property rights, administrative regulation, ethical aspects.

Environmental Economic evaluation methods.

· Cost-benefit analysis.
· Multi-criteria evaluation.

Company and Environment.

· Environmental costs for the company.
· Environmental accounting.
· New products and opportunities for the company.
· Environmental management systems for the company.

Competencies

Especific

The ability to integrate knowledge of integrated management of the natural environment and natural resources, particularly water and energy resources, in the development and proposal of scientific and technological solutions to challenges to sustainability.
Apply scientific concepts to environmental problems and their correlation with technological concepts.

Transversal

SUSTAINABILITY AND SOCIAL COMMITMENT: Being aware of and understanding the complexity of the economic and social phenomena typical of a welfare society, and being able to relate social welfare to globalisation and sustainability and to use technique, technology, economics and sustainability in a balanced and compatible manner.
TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.
FOREIGN LANGUAGE: Achieving a level of spoken and written proficiency in a foreign language, preferably English, that meets the needs of the profession and the labour market.

Total hours of student work

		Hours	Percentage
Supervised Learning	Large group	25.5 h	56.67 %
	Medium group	9.75 h	21.67 %
	Laboratory classes	9.75 h	21.67 %
	Guided Activities	0.0 h	0.00 %
Self Study		80.0 h	

Contents

Environmental Economic Evaluation Methods

Introduction to Environmental Economics.
Natural Resources and Environment
- Welfare Economics and the Environment.
- Market and Public Policy Failures: Externalities and public goods.
- Natural resources and factors of production.
- Renewable resources and nonrenewable resources.
- Introduction to Ecological Economics.
- Introduction to the concept of environmental assessments.
- Methods of Environmental Evaluation.
- Methods of Revealed Preference.
- Methods of Stated Preference.

Specific Objectives

Obtain basic knowledge of environmental valuation techniques, to be applied both in the public and private management of the environment.

Economic Policy and Regulation

Environmental economic policy: Taxes and Subsidies, Property Rights, Administrative Regulation, Ethical Aspects.

Specific Objectives

The main objective is the introduction of the main instruments for the analysis of technical and economic environment.

Company and Environment

Company and wastewater management

Specific Objectives

The main objective of these sessions is the descripction of the main private wastewater policies in firms,

Activities

Multidisciplinary analysis of a real case in the valuation techniques and knowledge are applied jointly

There will be a guided empirical activity related to the environmental assessment of a real case.

Dedication

6h

Teaching Methodology

The subject consists of 3 hours per week of classroom activity (large size group).

The classes in the large size groups are devoted to theoretical issues, in which the basic concepts and topics of the subjecta re introduced, and some exercises and qüestions are performed.

Support material in the form of a detailed teaching plan is also provided using the virtual campus ATENEA: contents, conducted learning program and assessment activities, and also the relevant literature.

Grading Rules

(*) The evaluation calendar and grading rules will be approved before the start of the course.

Final exam with materials (50%), Discussion of cases (25%), Revision of papers (25%)

Test Rules

Failure to perform a laboratory or continuous assessment activity in the scheduled period will result in a mark of zero in that activity.

Office Hours

The timetable set out the classes by e-mail with the professor.

Bibliography

Basic

- Edwards-Jones, G.; Davies, B.; Hussain, S. Ecological economics : an introduction. Oxford: Blackwell science, 2000. ISBN 0865427968.
- Drechsel, P.; Qadir, M.; Wichelns, D. (eds.). Wastewater: economic asset in an urbanizing world. Dordrecht: Springer, 2015. ISBN 9789401795456.
- Turner, R.K.; Bateman, I.J.; Adger, W.N. Economics of coastal and water resources : valuing environmental functions. Dordrecht ; Boston: Kluwer Academic Publishers, 2001. ISBN 0792365046.
- Freeman, A.M. The measurement of environmental and resource values: theory and methods. 3rd ed. Washington, D.C.: Resources for the Future, 2014. ISBN 9780415501576.
- Griffin, R.C. Water resource economics: the analysis of scarcity, policies, and projects. 2nd ed. Cambridge, Mass.: MIT Press, 2016. ISBN 9780262034043.
- Amacher, G.S.; Ollikainen, M.; Koskela, E. Economics of forest resources. Cambridge, Mass.: MIT Press, 2009. ISBN 9780262255424.