Universitat Autònoma de Barcelona

2019/2020

Environmental Economics and Natural Resources

Code: 102840
ECTS Credits: 9

Degree	Type	Year	Semester
2501915 Environmental Sciences	OB	2	2

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Teachers

Claudio Cattaneo

External teachers

PROFESSOR PENDENT D'ASSIGNAR

Prerequisites

It is recommended to have studied the subject Human Uses of the Earth System of the 1st year.

Objectives and Contextualisation

Contextualization

The subject Environmental and Natural Resources Economy (EARN) belongs to the subject "Economics for the e

taught by the Faculty of Sciences. This subject concentrates all the subjects of economics, that are distributed by

EARN contributes essentially to the process of learning and learning of the 2nd Course because it introduces cor

understand the relationship between human and natural systems. In particular, we explore the biophysical analys

the different resources and services that the Earth system offers us.

In addition, it participates in the professional training of the students given that it fosters learning in a series of ge

critically and improve self-employment strategies), transversal (for example, to know how to select and generate

dynamics of the present and its relation with the environment and the use of natural resources) and specific (to di

to identify and analyze the impacts environmental aspects of economic activity) that will be very useful for future p

management of the environment and natural resources.

Training objectives

The objective of the subject is double, on the one hand, to understand the basic concepts of the economy that sh

open to the entry of energy and materials, and to the waste exit. That is, we study the biophysical functioning of e

and the role that naturalresources play in maintaining the economic system.

At the end of the course the student will have a clearer idea of:

i) The basic concepts of the economy and its use in environmental sciences;

ii) The basic literature of the methods and concepts presented;

iii) The relationship between the economic process of human systems and the land system, as well as the differe

Competences

- Adequately convey information verbally, written and graphic, including the use of new communication and information technologies.
- Analyze and use information critically.

- Collect, analyze and represent data and observations, both qualitative and quantitative, using secure adequate classroom, field and laboratory techniques
- Demonstrate adequate knowledge and use the tools and concepts of the most relevant social science environment.
- Demonstrate concern for quality and praxis.
- Demonstrate initiative and adapt to new situations and problems.
- Teaming developing personal values regarding social skills and teamwork.
- Work autonomously

Learning Outcomes

1. Adequately convey information verbally, written and graphic, including the use of new communication and information technologies.
2. Analyze and use information critically.
3. Apply the methods of evaluation.
4. Apply the methods of integrated assessment of alternatives presented in the course.
5. Critically analyze basic environmental science literature in Catalan, Castilian and English.
6. Demonstrate concern for quality and praxis.
7. Demonstrate initiative and adapt to new situations and problems.
8. Describe and analyze the process of change in the natural environment.
9. Distinguish the biophysical aspects (resource use and waste generation) related to the process of economic activity.
10. Identify environmental and social impacts associated with human activity.
11. Observe, recognize, analyze, measure and adequately represent economic processes applied to environmental sciences.
12. Properly use the analytical concepts of environmental science.
13. Recognizing the effects of human activity on the environment.
14. Teaming developing personal values regarding social skills and teamwork.
15. Work autonomously

Content

FIRST PART

1. The economic system and the environment. Economy and ecological economy: conceptual and methodologic

Basic Reading: White - The Economy: Concepts and fundamental problems.

Common and Stagl - Introduction to the ecological economy. The economy in the environment: A conceptual fran

Krugman, Wells and Olney - What is economics? Habitual actions of daily life. Basic principles.

Samuelson - The fundamentals of the economy.

2. Markets and prices: supply and demand.

Basic Reading: White - The Demand, the Offer and the Market.

Common and Stagl - Exchange and markets. Krugman, Wells and Olney - Offer and demand. The market strikes

Samuelson - Basic elements of supply and demand. Applications of supply and demand.

3. Production and costs.

Basic Reading: White -The company: Production. Costs and benefits.

Krugman, Wells and Olney - The producer. What is behind the supply curve: productive factors and costs. Perfec

Samuelson - Production and organization of business. Cost analysis. Production, cost theory and business decis

4. Market structures: competitive markets and non-competitive markets.

Basic Reading: White -The Company in the Market of perfect competition.

Non-competitive markets: Monopoly, monopolistic competition and oligopoly.

Krugman, Wells and Olney -Markets and efficiency. Market structure: beyond perfect competition. Monopoly.

Oligopoly Monopolistic competition and product differentiation.

Samuelson - Analysis of perfectly competitive markets. Imperfect competition and monopoly. The oligopoly and n

5. Fundamentals of public sector intervention.

Basic Reading: Common and Stagl - Limits to the markets. Samuelson - Protection of the environment.

6. Macroeconomics: the economic system from an aggregateperspective.

Basic Reading: White -Variables and Macroeconomic Concepts. Production and Employment Prices and balance

Growth and cycle. Fiscal policy. Monetary politics.

Common and Stagl - Economic growth and environment.

Krugman, Wells and Olney - Introduction to macroeconomics. Macroeconomics: a global vision. Short-term econ

The aggregate supply and demand. Fiscal policy The taxes and the multiplier. Money, Central Banks and moneta

Samuelson - General overview of macroeconomics. Economic cycles and aggregate demand theory. Guarantee

The central bank and monetary policy. The process of economic growth. The exchange rates and the internationa

Macroeconomic policies to promote growth and stability.

7. Macroeconomic accounting and environmental accounts.

Basic Reading: Common and Stagl - Economic accounting. Krugman, Wells and Olney - Evaluate macroeconom

SECOND PART

1. Economic characterization of pollution. Externalities Determination of the "optimal" level of contamination. Inter

Pigou - 'green' taxation applications. Coase - trade in pollutant emission rights, trade in rights over environmental

Basic Reading: Martínez Alier and Roca Pgs. 102-191.

Complementary readings: Martínez and Kosoy 2007; Azqueta 29-52; Azqueta 237-268; Jacobs 229-322; Romero

2. Valuation of environmental resources.The total economic value of resources. The families of valuation method

Basic Reading: Martínez Alier and Roca Pgs. 192-275.

Complementary readings: Azqueta 53-142; Romero 51-76; Jacobs 129-160; Jacobs 337-362.

3. Cost benefit analysis. Case studies: dams, mangroves ... The concept of "discount thefuture". The process for

Examples of cost-benefit analysis of environmental projects. Arguments in defense of a social discount and critici

Basic Reading: Martínez Alier and Roca Pgs. 192-275.

Complementary readings: Azqueta 143-196; Jacobs 323-336.

4. The multi-criteria evaluation. Methodological foundations: commensurability, comparability and pluralism of val

Review of the main multi-criteria approaches. Applications of multi-criteria analysis.

Basic Reading: Munda 2004.

Complementary readings: Falconí and Burbano 2004.

5. Non-renewable resources. Base of resources and reserves. The Hubbert curve. Determination of the optimal e

Backstop technologies? A review of energy policies in Spain and the world. Agro-fuels, EROI (Energy Return on

Basic Reading: Martínez Alier and Roca Pgs. 297-327,
Romero 15-28.

Complementary readings: Romero 77-102.

6. Renewable resources. The sustainable yield. Biological models vs. economic

Forest economics: the technical forestry turn, the Faustmann rule. Plantations are not forests - environmental ser

Economy of fishing. The biological model and the economic model. Situation of fisheries resources in the world.

Basic Reading: Martínez Alier and Roca Pgs. 328-366.

Complementary readings: Romero 103-159.

7. Ownership and access to natural resources

Typology of property rights and relationship with the managementof natural resources. The governance of the co

Processes of access and exclusion tonatural resources. Practice - The tragedy of the common

Basic reading: Martínez Alier, J. and J. Roca Jusmet. 2008. Ecological Economics and Environmental Policy. UN

Methodology

1. Master class

The teacher will perform an analytical conceptualization and an updated synthesis of each of the study topics sho

The objective of this activity is to facilitate the transmission of knowledge and the motivation for the analysis of th

which are focused in order to promote active and cooperative learning.

2. Practical sessions

They are structured into four types of activities:

1) research, interpretation and analysis of macroeconomic variables, and presentation of a group work.

2) analysis of the result of a game, and

3) description and multicriteria analysis of an environmental conflict.

With these activities the students will not only consolidate the knowledge learned

in the master classes but will learn to do individual and group research, analyze information, synthesize it, defenc

3. Tutorials

The process of learning and acquisition of competences will be supervised by the teacher through individual and

The teacher of the subject will be available to the students to solve the doubts and follow the evolution of the mer

competences of the students.

4. Virtual campus of the subject

In face-to-face teaching, the Virtual Campus is a useful tool, so that students have a complementary space where

that the teacher considers essential to advance in the learning process of the subject. To access it you just have

(http://www.uab.es/interactiva/default.htm), or be directly on the campus webpage virtual (https://cv2008.uab.cat/

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Solving problems classes 1st part. Activities, exercises, data information research, debates	9	0.36	5, 2, 3, 4, 7, 6, 8, 9, 10, 11, 13, 1, 15, 14, 12
Solving problems classes 2nd part. Work development	9	0.36	5, 2, 4, 7, 6, 8, 9, 10, 11, 13, 1, 15, 14, 12
Teaching master class	50	2	5, 3, 9, 10, 13, 12
Type: Supervised			
Teaching laboratory preparation following the professor guide	30	1.2	5, 2, 10
Tutoring	10	0.4	
Type: Autonomous			
Bibliography search information	15	0.6	2, 15, 14
Reading and theory study	74	2.96	2, 15
Teaching laboratory preparation	23	0.92	2, 1, 15, 14

Assessment

The evaluation of the subject is based only on continuous evaluation.

It is not possible to take the resit exam if the student has not scored at least 3 points out of 10 in the two individua

- An individual test of the first part of the course. This part is worth 50% of the final grade.

- An individual test of the second part of the course. This part is worth 40% of the final grade.

- A practical note related to the applied work consisting of an oral presentation and a written work (in the form c

This last part will have a value of 10% of the final grade. This practice will be done during the second part of the c

The Virtual Campus will host a document explaining the practical activity and the written work, which will serve to

In order to be able to be part of the continuous evaluation it is necessary to score a minimum of a 3 (over 10) in e

Students who have failed the continuous assessment will have the right of a theoretical final exam. In order to be

the student must have been previously evaluated in a set of activities whose weight equals to a minimum of 2/3 c

Evaluation activities that can be recovered are the two individual tests only (which add 90% of the total final grade

The practice note can not be re-evacuated. Only continuous assessment can be followed.

"Not assessable" is considered that the student who has not followed or approved the continuous assessment.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exam first part of the course	50%	2	0.08	5, 2, 9, 10, 11, 1
Exam second part of the course	40%	2	0.08	5, 2, 3, 4, 9, 10, 11, 13, 1, 12
Final Project Report and Presentation of the second part of the course	10%	1	0.04	5, 2, 7, 6, 8, 11, 1, 15, 14

Bibliography

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Common, M., Stagl, S. (2008) ***Introducción a la Economía Ecológica***, Ed. Reverté.

Krugman, P., Wells R., Olney, M.L. (2012) ***Fundamentos de economía***, 2º ed. Ed. Reverté.

Martínez Alier, J., Roca, J. (2002, reimpresión de 2006). ***Economía ecológica y política ambiental***, Fondo de Cultura Económica, México, 493 p. Biblioteca CC.SS. E17.80 Mar, Biblioteca Ciencias 504.03 Mar

Samuelson, P., Nordhaus, W. (2005) ***Economía*** 18a. Edició, Mc. Graw Hill.

Aguilera, F. (2008). *La nueva economía del agua*. Los libros de la Catarata, Madrid, 160 p. Biblioteca CC.SS. E17.60 Agu

Azqueta, D. (2002). *Introducción a la Economía Ambiental*, McGraw Hill Profesional, Madrid, 420 p. Biblioteca CC.SS. E17.80 Azq. Biblioteca Ciencias 504.03 Azq

Carpintero, O. (2005). *El metabolismo de la economía española. Recursos naturales y huella ecológica (1955 - 2000)*. Fundación César Manrique, Lanzarote, 636 p. Libro completo disponible en: http://www.fcmanrique.org/recursos/publicacion/elmetabolismo.pdf

Falconí, F., Burbano, R. (2004). Instrumentos económicos para la gestión ambiental: decisiones monocriteriales versus decisiones multicriteriales. *Revista Iberoamericana de Economía Ecológica*, Vol. 1: 11-20. Versión electrónica disponible en http://www.redibec.org/ccount/click.php?id=2

Jacobs, M. (1997). *La economía verde*. Icaria Editorial, Barcelona, 431 p. Biblioteca CC.SS E17.80 Jac

Madrid, C., Velázquez, E. (2008). El metabolismo hídrico y los flujos de agua virtual. Una aplicación al sector hortofrutícola de Andalucía (España).*Revista Iberoamericana de Economía Ecológica*, Vol. 8: 29-47. Versión electrónica disponible en http://www.redibec.org/ccount/click.php?id=46

Martinez Alier, J., (2005). *El ecologismo de los pobres. Un estudio de conflictos ecológicos y lenguajes de valoración*, Icaria, Barcelona. Biblioteca CC.SS. E17.01 Mar, Biblioteca Ciencias 504.03 Mar

Martínez Tuna, M., Kosoy daroqui, N. (2007). Compensaciones monetarias y conservación de bosques. Pagos por servicios ambientales y pobreza en una comunidad rural en Honduras. *Revista Iberoamericana de Economía Ecológica*, Vol. 6: 40-51. Versión electrónica disponible en http://www.redibec.org/ccount/click.php?id=33

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Ramos-Martin, J. (2001): "De Kyoto a Marrakech: historia de una flexibilización anunciada", *Ecología Política* 22: 45-56. Versión electrónica disponible en http://www.ecologiapolitica.info/ep/22.pdf

Ramos-Martin, J. (2004). La perspectiva biofísica de la relació home-natura: Economia Ecològica, en J. Valdivielso (Ed.), *Les dimensions socials de la crisi ecològica*, Edicions UIB, Palma de Mallorca, 316 p. Biblioteca CC.SS E17.01 Dim

Romero, C. (1997). *Economía de los recursos ambientales y naturales*, Alianza , Madrid, 214 p. Biblioteca CC.SS. E17.80 Rom, Biblioteca Ciencias http://cataleg.uab.cat/search~S1*cat?/tEconom%C3%ADa%20de%20los%20recursos%20ambientales%20y%2(

Recursos electrònics

Llibres

Costanza, R., Cumberland, J.H., Daly, H., Goodland, R., Norgaard, R.B. (1997). *An Introduction to Ecological Economics*. St. Lucie Press and International Society for Ecological Economics. Llibre complet disponible a: http://www.eoearth.org/article/An_Introduction_to_Ecological_Economics_(e-book)

Naredo, J.M., Parra, F. (Eds)(2002). *Situación diferencial de los recursos naturales españoles*. Fundación César Manrique, Lanzarote, 337 p. Llibre complet disponible a: http://www.fcmanrique.org/recursos/publicacion/situaciondiferencial.pdf

Jevons, W.S. (1865, 1866 2nd edition revised). *The Coal Question*. London: Macmillan and Co. Llibre complet disponible a: http://www.eoearth.org/article/The_Coal_Question_(e-book)

Millennium Ecosystem Assessment Synthesis Reports - http://www.eoearth.org/article/Millennium_Ecosystem_Assessment_Synthesis_Reports

Ecological Economics Enciclopedia - http://www.ecoeco.org/education_encyclopedia.php

Revistes

Revista Sostenible? De la Cátedra UNESCO deSostenibilitat dela UPC - https://e-revistes.upc.edu/handle/2099/1208

Revista Iberoamericana de Economía Ecológica - http://www.redibec.org/revibec.html

Revista Medi Ambient, Tecnologia i Cultura (Generalitat de Catalunya) - http://mediambient.gencat.net/cat/el_departament/revista/

Cursos on-line i material addicional

http://introduccioeconomia-dea.uab.cat/

Introduction to Ecological Economics. The University of Vermont. On-line course: http://metacourses.org/ecologicaleconomics/

Ecological Economics. Nebraska University. On-line course: http://agecon.unl.edu/lynne/ecolecon/ecoleconsyllabus.htm

EMergy http://www.emergysystems.org/

Material Flow Accounting - MFA http://www.materialflows.net/index.php

Programes de televisió

Notícias de Medio Ambiente (TVE) - http://www.rtve.es/noticias/medio-ambiente/

El Medi Ambient (TV3) - http://www.tv3.cat/elmediambient

Espai Terra (TV3) - http://www.tv3.cat/espaiterra

El Escarabajo Verde (TVE) - http://www.rtve.es/television/escarabajo/

Terra Verda (TVE) - http://www.rtve.es/television/terraverda/

Racons de Verd(TVE) - http://www.rtve.es/television/racons-de-verd/

Webs institucionals

OECD Environment - http://www.oecd.org/env/

World Bank - Environment http://www.worldbank.org/environment

European Environment Agency - http://www.eea.europa.eu/

Ministerio de Medio Ambiente y Medio Rural y Marino - http://www.marm.es/

Departament de Medi Ambient - http://mediambient.gencat.cat/

Observatorio de la Sostenibilidad en España - http://www.sostenibilidad-es.org/

Consell Assessor per al Desenvolupament Sostenible - http://www.gencat.cat/cads

Associacions científiques

Societat Internacional d'Economia Ecològica (ISEE): http://www.ecoeco.org

Societat Europea d'Economia Ecològica (ESEE): http://www.euroecolecon.org

Xarxa Iberoamericana d'Economia Ecològica (REDIBEC): http://www.redibec.org

Xarxa d'Economia Ecològica a Espanya (REEE): http://www.ecoecoes.es/

Associació Hispano-Portuguesa d'Economia dels Recursos Naturals (AERNA): http://www.aerna.org