Universitat de Lleida

DEGREE CURRICULUM

BIOECONOMY AND VALUATION OF ECOSYSTEM GOODS AND SERVICES

Coordination: VILADRICH GRAU, MONTSERRAT

Academic year 2023-24

BIOECONOMY AND VALUATION OF ECOSYSTEM GOOD... 2023-24

Subject's general information

Subject name	BIOECONOMY AND VALUATION OF ECOSYSTEM GOODS AND SERVICES
Code	103035
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION
Typology	Degree: Master's Degree in Forestry Engineering; Course: 1; Character: COMPULSORY; Modality: Blended learning
Course number of credits (ECTS)	4
Type of activity, credits, and groups	Activity type: PRALAB / PRAULA / TEORIA Number of credits: 1 / 0.5 / 2.5 Number of groups: 1 / 1 / 1
Coordination	VILADRICH GRAU, MONTSERRAT
Department	ECONOMICS AND BUSINESS
Important information on data processing	Consult this link for more information.

BIOECONOMY AND VALUATION OF ECOSYSTEM GOOD... 2023-24

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
DE MIGUEL MAGAÑA, SERGIO	sergio.demiguel@udl.cat	,5	
VILADRICH GRAU, MONTSERRAT	montse.viladrich@udl.cat	3,5	

Learning objectives

The objective of the course is to familiarize the student with economic tools that allow them to understand and apply methodologies and models that facilitate the performance of efficient and economically and environmentally sustainable forest resource management.

Competences

B06 Possess and understand knowledge that provides a basis or opportunity to be original in the development and / or application of ideas, often in a research context

B07 That students know how to apply the knowledge acquired and have the ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study

B08 That students are able to integrate knowledge and face the complexity of formulating judgments based on information that, being incomplete or limited, includes reflections on social and ethical responsibilities linked to the application of their knowledge and judgments

B09 That students know how to communicate their conclusions - and the knowledge and ultimate reasons that support them - to specialized and non-specialized audiences in a clear and unambiguous way

B010 That students possess the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous

CG2 Design, write, direct, elaborate, implement and interpret projects and plans in the forest field and in the natural environment

CG7 Develop forest policies CE5 Design plans for the integral sustainable development of forest regions and the development of management indicators

CE5 Design comprehensive sustainable development plans for forest regions and the development of management indicators

CE14 Analyze the management of economic resources from an economic and financial point of view.

Subject contents

Theory Program (3.5 credits)

Topic 1: Economic management of forests and the goods and services they provide. Typology of goods and services. The multifunctionality of forests.

Topic 2: Valuation and economic management of mountains and forest use. Faustmann's formula. Costs and

income in the production cycle of a forest. Updating of costs and income. The value of the land. The profitability of Mt. Valuation of forest farms. Valuation and economic management of timber harvesting. Valuation of repopulations. Valuation of losses due to forest fires. The wood market. Value chain.

Topic 3: Valuation and economic management of non-timber uses: goods and services for which there is a market. Valuation of mushroom, cork and fruit products, among others. The markets for these products. Difference between valuation and market prices.

Topic 4: Introduction to the ecosystem services of forest ecosystems (carbon sink, preservation of biodiversity, protection against erosion, scenic beauty, etc). The externalities. International experience and local experience in the management and valuation of ecosystem services.

Topic 5: Valuation and management of ecosystem goods and services for which there is no market. Methods of valuation of ecosystem goods and services. The method of avoided costs, replacement costs, opportunity cost. Revealed Preference Methods. Declared Preference Methods. This topic will be completed with the study of specific cases for each methodology and with an assessment exercise.

Topic 6: Optimal forest management. Trade-offs between various forest goods and services. Faustmann's formula with ecosystem services. Strategies to maximize the profitability of the joint production of the various forest products. This topic will be completed with the study of specific cases.

Topic 7: Design of forest policy instruments aimed at sustainable and efficient management of forest resources. The use of economic incentives to improve forest management. International strategies for the protection of the natural environment. What can we learn from them? What problems must we face both locally and internationally to ensure sustainable forest management?

Applied (1.5 credits) The practical program of this subject focuses on carrying out a multifunctional valuation work of a forest area that includes all the topics addressed in the subject. These works will necessarily include sections where they are applied: 1) The techniques of valuation of the forest uses collected in the subjects 2 and 3 of the program. 2) Ecosystem services valuation techniques with the methods studied in topics 4 and 5. And 3) Based on the results obtained, students should formulate forest space management recommendations using the analysis techniques presented in topics 6 and 7. To carry out this work, it will be necessary to use models, obtain data and carry out the corresponding statistical and econometric estimates. Students must be familiar with the R and STATA software, this knowledge will be acquired in the subject "ECONOMETRY I STATISTICS METHODS IN L'ÀMBIT FORESTAL".

Methodology

The approach of this course has two sides, one theoretical and one practical. The theoretical sessions will be developed through the master classes and the participation in class of the students in the discussion of the study topics. The practical sessions will be structured in the development of practical exercises in an autonomous way and in the study of cases with sharing of the results.

Development plan

During the development of the subject, the degree of attendance will be approximately 50%. The face-to-face classes may have theoretical or practical content, the latter will be developed through problem solving and case studies.

The temporary schedule of the content of the sessions of the subject must be consulted in its Resources folder.

Evaluation

The evaluation of the theoretical and practical competences will be carried out from exam in class (25%), problem solving (20%), participation in class (10%) and realization and presentation of the projects and works (45%)

Bibliography

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-Conrad, Jon M. (2006). Resource Economics. Cambridge University Press. New York.

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-Díaz Balterio, L (1998). Fundamentos económicos del torno forestal optimo al incorporar diversos bienes y servicios, Revista de estudios agrosociales y pesqueros, 184: 159-182.

-FAO (2011). "Situación de los bosques del mundo". Ed. FAO. Roma. ISBN: 978-92-5-306750-3. 176 pp.

- Field, Barry C. & Martha K. Field (2006). *Environmental economics : an introduction*, Boston, McGraw-Hill Irwin, 4th ed.

-Kneese, A.V & Sweeney, J.L (1985). Multiple use management of public forestlands. Handbook of Natural Resources and Energy Economics, ch. 12, vol.II, North-Holland, Amsterdam.

- Krugman, P. i Wells, R. (2006) Introducción a la Economia. Microeconomía Editorial Reverté, Barcelona.

- Pearce David W., & R.Kerry Turner (1994). *Economía de los recursos naturales y del medio ambiente* Colegio de Economistas de Madrid.

- Riera, P.;Garcia, D.; Kriström, B.: Brännlund, R. (2005). *Manual de Economía Ambiental y de los Recursos Naturales*. Thomson, Madrid.

- Perman, Roger, Ma Yue, McGilvray James, Common Michael (2003). *Natural Resources and Environmental Economics.* Addison Wesley.

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