

COURSE SYLLABUS 2019-20

Basic information on the course			
Course:	Ecosystem Services and Sustainability		
Course code:	71051101	Plan:	Master in Sustainable Use of Natural Resources and Ecosystem Services
Academic Year:	2019/20	Undergraduate/Graduate:	Official University Master
Degree Year:	1	Type:	Mandatory
Duration:	First semester		
TIME DISTRIBUTION ACCORDING TO REGULATIONS			
Credits:	4,5		
Total time:	112,5		
USE OF LEARNING PLATFORM:	Support for teaching		

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OTHER IMPORTANT INFORMATION

Content justification

Science and technology have allowed humans to extend their influence at the planetary scale, allowing to carry out global transformations of the functioning and structure of ecological and social systems. It is estimated that between a third and a half of the planet has already been transformed by human actions; and the concentration of carbon dioxide has increased by almost 30% since the beginning of the industrial revolution, that humanity fixes more atmospheric nitrogen than all terrestrial ecosystems; and more than half of all the surface freshwater of the continents is used; and humans use between 10 and 55% of the terrestrial products and around a quarter of the bird species threatened (Vitousek et al., 1986). On the other hand, ecosystems have been providing humanity, through its structure, a whole variety of goods such as species with commercial, hunting, fishing, livestock, agricultural or forestry interests, etc.; and, through their functioning, services, such as water supply, waste assimilation, soil fertility, pollination, aesthetic and emotional values, etc. These flows of ecosystem services are vital for well-being. However, the transformations produced that are altering the functioning and structure of ecosystems are also affecting the supply of goods and services that these provide us. For this reason, more and more authors support the idea of sustainability or sustainable development on the need to ensure that supply, current and / or potential, ecosystem services, which are essential for the maintenance of natural capital of (Costanza et al., 1997).

Courses related in Study Plan

Global Change, Climate Change, Changes in the Physical Environment and Biodiversity, Sustainable Use of Water Resources, Sustainable Use of Biodiversity, Management of Territorial Sustainability, Economic and Social Implications of Global Change

Knowledge required to address the course

None

Pre-required knowledge

None

COMPETENCES

Basic and general competences

Basic competences

- *Understand and get knowledge*
- *Application of knowledge*
- *Ability to communicate and social aptitude*

General competences

Key competences University of Almeria

- Social competence and global citizenship
- Ability to solve problems
- Oral and written communication in one's own language
- Ability in the use of ICT
- Ethical commitment

Specific competences

- Evaluate and disseminate the role of biodiversity and ecosystems in the maintenance of human well-being
- Analyze the impact of global change: drivers of change, functioning of ecosystems, loss of ecosystem services
- Develop assessment of ecosystem services across specific regions and provide useful information for decision making

LEARNING OUTCOMES

- Understanding of the relationship between biodiversity, ecosystem function and ecosystem services.
- Understanding of the functioning of the ecosystem and the services they provide to humans
- Understanding of the interactions between environmental impact, ecosystem services and sustainability.
- The use of techniques for the biophysical evaluation of the functions and services of ecosystems.
- The use of techniques for the social, cultural and economic evaluation of ecosystems.
- Acquisition of skills in the application of the socio-ecological approach in sustainability evaluations.

COMPETENCY ASSESSMENT

Criteria and assessment tools

The course will be evaluated based on:

- Understanding of the relationship between biodiversity, functions and ecosystem services.
- Understanding of the functioning of the ecosystem and the services it generates for human well-being.

- Understanding of the interactions between environmental impact, ecosystem services and sustainability. • The use of techniques for the biophysical evaluation of the functions and services of ecosystems.
- The use of techniques for the social, cultural and economic evaluation.
- Acquisition of skills in the application of the socio-ecological approach.

Evaluation instruments:

- Written tests, 20%
- Control of tasks (exercises, problems, cases, conceptual diagrams), 15%
- Oral presentations (projects, works, reports), 20%
- In class attendance and participation, 20%
- Work presentation (of bibliographic, scientific, technical, practical revision or reports), 20%
- Use of tutorials, 5%

Total: 100%

Follow-Up Mechanisms

- Assistance to tutorials
- Assistance and participation in seminars
- In-class activities
- Activities in the virtual classroom

Functional diversity / Functional disability.

- Those students with disabilities or special educational needs can get in contact with the Delegation of the Rector for the Functional Diversity (<http://www.ual.es/discapacidad>) to receive the appropriate guidance and advice in order to facilitate their instructional, learning and training processes. Likewise, these students may request the implementation of the necessary and suitable adaptations of content, methodology and evaluation that guarantee equal opportunities in their academic development. The processing of any personal data or aggregated information regarding these aforementioned students, in fully compliance with the GDPR, is strictly confidential. Faculties and academic staff lecturing the course referenced by this guide/document will be in charge of applying the recommended adaptations approved by the Delegation of the Rector for the Functional Diversity, this fact will be, therefore, notified to the School or Faculty as well as to the coordinator of the academic course.

COURSE MATERIALS

Recommended course materials

Basic:

Costanza, R.; d'Arge, R.; de Groot, R.; Farber, S.; Grasso, M.; Hannon, B.; Limburg, K.; Naeem, S.; O'Neill, R. V.; Paruelo, J.; Raskin, R. G.; Sutton, P., and van den Belt, M.. The value of the world's ecosystem services and natural capital. *Nature*. 1997.

Martín-López B., I. Martín-Forés, J.A. González, C. Montes. La conservación de la biodiversidad en España: atención científica, construcción social e interés político. *Ecosistemas*. 2011.

Vitousek, P.; Ehrlich, P.; Ehrlich, A. & Matson, P. . Human appropriation of the products of photosynthesis. *Bioscience*. 1986.

Carlos Montes et al.. La Evaluación de los Ecosistemas del Milenio de España. Síntesis de resultados.. Fundación Biodiversidad. Ministerio de Medio Ambiente, y Medio Rural y Marino. 2011.

Walter V. Reid et al.. Ecosystems and human well-being: Biodiversity synthesis. World Resources Institute. 2005.

Complementary

Díaz, S., J. Fargione, F. S. Chapin III, D. Tilman. Biodiversity loss threatens human well-being. *Plos Biology*. 2006.

Additonal

de Groot R.S., R. Alkemade, L. Braat, L. Hein, L. Willemen. Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making. *Ecological Complexity*. 2010.

Luck, G.W., R. Harrington, P.A. Harrison, C. Kremen, P.M. Berry, R. Bugter, T.P. Dawson, F. de Bello, S. Diaz, C.K. Feld, J.R. Haslett, D. Hering, A. Kontogianni, S. Lavorel, M. Rounsevell, M.J. Samwa. Quantifying the contribution of organisms to the provision of ecosystem services. *Bioscience*. 2009.

Couse materials available in UAL's library

You can see the current bibliography in the Library Management System by consulting the following address:

<http://almirez.ual.es/search/e?SEARCH=SERVICIOS ECOSISTEMICOS Y SOSTENIBILIDAD>

WEBSITE

- <http://www.ecomilenio.es>
Evaluación de los Ecosistemas del Milenio. España