SUBJECT TEACHING GUIDE

G1164 - Ecology

Degree in Civil Engineering

Academic year 2018-2019

1. IDENTIFYING DATA					
Degree	Degree in Civil Engineering			Type and Year	Optional. Year 3
Faculty	School of civil Engineering				
Discipline	Subject Area: Environmental Engineering				
Course unit title and code	G1164 - Ecology				
Number of ECTS credits allocated	6	Term		Semester based (2)	
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE
Name of lecturer	JUAN CARLOS CANTERAS JORDANA
E-mail	juan.canteras@unican.es
Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 2. DOCTORANDOS ECOLOGIA (2016)
Other lecturers	MARIA LUISA PEREZ GARCIA XABIER EDUARDO MORENO-VENTAS BRAVO

3.1 LEARNING OUTCOMES
- Identify, understand and use the concepts and terms of ecological theory
- Use basic techniques of broad ecological methodology within the context of the scientific method
- Assess the state of natural systems
- Identify, develop, explore alternatives and provide the results in solving environmental problems by studying the main natural resources, the flow of matter and energy and human impact on ecosystems.

4. OBJECTIVES

Show students a comprehensive, dynamic and current view of ecological science

6. COURSE ORGANIZATION

CONTENTS	
1	What is Ecology ?. Because Ecology is required ?. Unit of study of ecology. Approaches of Ecology. Ecology and Environmentalism.
2	The organism and environment: ecological factors. The response of organisms to the environment. Concept of limiting factor. Types of environmental factors. Biogeography. Concepts Habitat and ecological niche. ecological equivalents. Types of species. indicator species. Adaptation to the environment. Speciation. adaptive convergence and adaptive radiation.
3	Population Ecology: Population and Metapopulation. Size and population density. Measurement techniques. Models of population growth.
4	Community and Ecosystem: The ecological community. Degree of structure. Ecological diversity. Measures the degree of structuring of the community. Ecosystem functioning: chains and food webs, the flow of energy and flow of matter. Ecological succession.
5	The terrestrial environment. Terrestrial biomes
6	Structure and function of freshwater ecosystems: Wetlands. Lakes and reservoirs. Rivers and streams.
7	Estuaries and marshes: Characteristics and importance. Structure and function.
8	The marine environment: Features. Zoning. Structure and function and marine ecosystems.
9	Environmental ecosystem services. Global impacts. The ecological footprint. Sustainable development.
10	Environmental management. Protected species. Protected areas.
11	Ecology and Regional Planning. Landscape ecology. territorial units.
12	Urban ecology: the urban ecosystem. The structure and metabolism of cities.
13	Evaluation.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Evaluation problems	Written exam	No	Yes	40,00
Theory exam	Written exam	Yes	Yes	40,00
Work	Work	No	No	20,00
TOTAL				100,00

Observations

Students can recover the suspended evaluations (less than 5 rating). The minimum rating of 4 permits the application of the percentages in each call.
Rating system: 0.0 to 4.9: Thriller (SS). 5.0 to 6.9: approved (AP). 7.9 to 8.9: Notable (NT). 0.0 to 10: Outstanding (SB).

Observations for part-time students

Students will undergo an evaluation process that will involve the establishment of a single written exam of the training (60% of the final grade) plus the completion and delivery of a work (40% of the final grade) material.

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
Margalef, R. 1982. Ecología. Ed. Omega
Molles, MC. 1999. Ecología. Ed Piramide
Ricklefs, RE. 1998. Invitación a la Ecología. Ed Panamericana
Rodríguez, J. 1999. Ecología. Ed. Piramide
Smith, RL. y TS. Smith. 2000. Ecología. Ed Addison Wesley
Odum. 1973. Ecología. Interamericana
Presentaciones de las clases presenciales utilizadas por los profesores
Acevedo, MF, y Raventos, J. 2003. Dinámica y manejo de poblaciones: modelos unidimensionales. Publicaciones de la Universidad de Alicante
Beeby, A. & A.M. Brennan. 2004. First Ecology. ed Oxford
Begon, M. 1994. Ecología. Individuos, poblaciones y comunidades. Begon, M., JL. Harper y CR. Townsend (edds). Ed. Omega
Dajoz, R. 2002. Tratado de Ecología. Ed Mundi-Prensa