

## SUBJECT TEACHING GUIDE

### 568 - Management and Diagnosis of Aquatic Ecosystems

#### Master's degree in integrated management of water systems

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Master's degree in integrated management of water systems			Type and Year	Compulsory. Year 1
Faculty	School of civil Engineering				
Discipline					
Course unit title and code	568 - Management and Diagnosis of Aquatic Ecosystems				
Number of ECTS credits allocated	4	Term	Semester based (2)		
Web	<a href="https://web.unican.es/centros/caminos/estudios/detalle-asignatura?c=M2054&amp;p=194&amp;a=2018">https://web.unican.es/centros/caminos/estudios/detalle-asignatura?c=M2054&amp;p=194&amp;a=2018</a>				
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE
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Other lecturers	JOSE ANTONIO JUANES DE LA PEÑA SAMUEL SAINZ VILLEGAS

### 3.1 LEARNING OUTCOMES

- Students will know which are the main impacts derived from ecological alterations, hydrometeorological processes and water pollution, and will be able to propose measures to address their integrated management.
- Students will be able to identify the agents involved in the management plans of aquatic systems and natural resources
- Students will know and handle some of the biological models applicable to risk assesment and environmental management of aquatic systems
- Students will be able to analyze the socio-economic implications derived from local, national and european policies related to the management of water resources, the protection of the population and the conservation of ecosystems.
- Students will be able to synthesize, present, discuss and defend ideas and/or results on topics proposed by the teacher related to the risk assesment and environmental mangement of water systems

### 4. OBJECTIVES

- To provide a basic knowledge to carry out the analysis of the interactions between the goods and services provided by the water systems and the problems associated with their use and management.
- To acquire the skills and abilities to address the characterization , evaluation and environmental assessment of aquatic systems.
- To know how to manage some of biological models applicable to hydrological management.

### 6. COURSE ORGANIZATION

CONTENTS	
1	Spatial planning and mangement of natural resources.
2	Asessment and diagnosis techniques of aquatic ecosystem
3	Climate change: effects and trends in aquatic ecosystems
4	Models for the management and planning of aquatic ecosystems

## 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Group task related to topic 1	Work	No	Yes	30,00
Individual task related to topic 1	Activity evaluation with Virtual Media	No	Yes	10,00
Individual task related to topic 2	Work	No	Yes	15,00
Practical task in classroom related to topic 3	Work	No	Yes	10,00
Individual practical task related to topic 4	Work	No	Yes	35,00
<b>TOTAL</b>				<b>100,00</b>
<b>Observations</b>				
As accorded by the relevant committees: As a general rule and unless stated otherwise anywhere in this guide, a student cannot request a reexamination if the original grade obtained in the evaluation was not a fail. As a general rule and unless stated otherwise anywhere in this guide, the reexamination activity will take the same form than the original evaluation activity. Grades are measured on a numeric scale going from 0 to 10, where values smaller than 5 are a Fail. Only for sufficiently justified reasons (i.e. sanitary restrictions), the evaluation activities could be organized online, if authorized by the School Director.				
<b>Observations for part-time students</b>				
Part-time students will need to agree with the responsible professor a teaching and evaluation plan to ensure an adequate transfer of knowledge as well as a fair evaluation procedure. The minimum requirement for this students will be to complete a piece of homework and to assist to the final exam of the subject. The weights of each part will be proportional to the weight those parts presents in the general evaluation scheme of the subject.				

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

- Burton, J. 2003. Integrated water resources management on a basin level: A training manual. Editions MultiMondes. UNESCO, Canada. 280 pp
- Domenech, J.L. et al. 2009. Gestión integrada de zonas costeras. AENOR ediciones. Madrid. 482 pp.
- Frankling, J., Miller, J.A. 2010. Mapping species distributions. Cambridge University Press.
- Townsend Peterson, A., Soberón, J., Pearson, R.G., Anderson, R.P, Martínez-Meyer, E., Nakamura, M., Araujo, M.B. 2011. Ecological Niches and Geographic Distributions. Princeton University Press.
- Real Decreto 817/2015, de 11 de septiembre, por el que se establecen los criterios de seguimiento y evaluación del estado de las aguas superficiales y las normas de calidad ambiental. Ministerio de Agricultura, Alimentación y Medio Ambiente. B.O.E. 11/9/2015.