Teaching Guide				
Identifying Data				2023/24
Subject (*)	Limnology		Code	632549021
Study programme	Máster Universitario en Xestión Sostible da Auga			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	2nd four-month period	First	Optional	3
Language				
Teaching method	Face-to-face			
Prerequisites				
Department	Enxeñaría Civil			
Coordinador	Delgado Martin, Jordi	E-mail	jorge.delgado@udc.es	
Lecturers	Delgado Martin, Jordi	E-mail	jorge.delgado@udc.es	
Web				
General description				

Study programme competences	
Code	Study programme competences
A3	CON3 Explain the foundations of chemistry, biology, and morphology of continental aquatic ecosystems. Provide the common methodology of the EU for assessing the status of water bodies and its adaptation to different territorial contexts. Identify models for assessing pressures and impacts on water bodies, understanding their opportunities and limitations. Suggest solutions for the maintenance and improvement of the status of water bodies across their different quality elements. Identify bioindicators.
B1	HAB1 Use and compare water legislation and conceptual frameworks related to sustainable development. Operate with tools that allow estimating economic variables (macro and micro) related to water, and employ the tools to apply appropriate taxation and cost policies to water
B4	HAB4 Analyze the European Union's Water Framework Directive and Floods Directive, their technical implications, and their implementation through hydrological planning. Utilize computer tools for problem-solving related to water management within the framework of both directives. Develop measurements and analysis of hydrologically relevant data and data related to the state of water bodies. Evaluate the effect of urban use on the watershed and analyze the consequences of discharging water (treated or untreated) into receiving water bodies. Additionally, develop strategies to protect areas of surface water and groundwater generation within watersheds, based on the principle of recognizing and enhancing ecosystem services.
C4	COM4 Integrate the various sources that generate the water supply and the uses that create the demand into systems or balances that allow for proper management. Plan the water resource at both macro and micro scales, allocating water to different uses while integrating environmental and social demands

Learning outcomes			
Learning outcomes	Study programme competences		
Explicar las bases de la química, la biología y la morfología de los ecosistemas acuáticos continentales. Proporcionar la metodología común de la UE para evaluar el estado de las masas de agua, y su adaptación a diferentes ámbitos territoriales. Identificar los modelos para evaluar las presiones y los impactos sobre las masas de agua, comprendiendo sus oportunidades y sus limitaciones. Indicar soluciones para el mantenimiento y mejora del estado de las masas de agua en sus diferentes elementos de calidad. Identificar bioindicadores.	AJ3	BJ1 BJ4	CJ4

Contents	
Topic	Sub-topic
Tema 1. Sistemas lóticos y lénticos. Características, clasificación y origen	Sistemas lóticos y lénticos. Características, clasificación y origen
Tema 2. Morfometría de lagos y embalses	Morfometría de lagos y embalses

Tema 3. Ambiente lumínico	Ambiente lumínico
Tema 4. Temperatura, calor y estratificación térmica	Temperatura, calor y estratificación térmica
Tema 5. Nociones de limnología física. Movimiento del agua y estabilidad	Nociones de limnología física. Movimiento del agua y estabilidad
Tema 6. Calidad química. Constituyentes mayoritarios y parámetros indicadores	Calidad química. Constituyentes mayoritarios y parámetros indicadores
Tema 7. Oxígeno y metabolismo de lagos y embalses	Oxígeno y metabolismo de lagos y embalses
Tema 8. Ciclos elementales (C, N, P, Fe, Mn) en lagos y embalses	Ciclos elementales (C, N, P, Fe, Mn) en lagos y embalses
Tema 9. Interfaz agua-sedimentos	Interfaz agua-sedimentos

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A1 A3 B1 B4 C4	21	49	70
Personalized attention		5	0	5
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	Desarrollo con explicación en grupo de los temas de los que se compone la materia

Personalized attention	
Methodologies	Description
Guest lecture / keynote speech	Se aclaran las dudas suscitadas por las explicaciones y se proporciona información complementaria para la mayor profundización en los aspectos de interés para la materia

Assessment			
Methodologies	Competencies	Description	Qualification
Guest lecture / keynote speech	A1 A3 B1 B4 C4		95

Assessment comments
La evaluación de la materia se basa en la superación de una prueba de respuesta mixta en la que se plantean cuestiones relacionadas con los contenidos docentes impartidos. La nota final se complementa con el resultado de un cuestionario breve realizado tras la salida de campo programada.

Sources of information	
Basic	1. R. Wetzel (2001) Limnology: Lake and River Ecosystems. 3ª Edición. Ed. Elsevier2. R. Wetzel y G. Likens (2013) Limnological analyses. Ed. Springer3. J. Kalff (2004) Limnology: Inland water ecosystems. Ed. Pearson
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously

Biological Assessment of Water Quality/632549024
Agricultural and Industrial Uses of Water/632549020
Ecosystemic Services and Ecohydraulics /632549022
Hydrological Basins Monitoring for the Tracking of Water Mases/632549023
Surface Water Assessment/632549015
Subjects that continue the syllabus
Other comments

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.