



IDENTIFYING DATA

Marine Botany

Subject	Marine Botany			
Code	V02M098V01102			
Study programme	University Master's Degree in Marine Biology			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	3	Mandatory	1st	1st
Teaching language	Spanish			
Department				
Coordinator	García Estévez, José Manuel Bárbara Criado, Ignacio Manuel			
Lecturers	Bárbara Criado, Ignacio Manuel García Estévez, José Manuel López Rodríguez, María del Carmen			
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Web				
General description				

Competencies

Code	
A1	(*)Posuír e comprender coñecementos que acheguen unha base ou oportunidade de ser orixinais no desenvolvemento e/ou aplicación de ideas, adoito nun contexto de investigación.
A2	(*)Que os estudantes saiban aplicar os coñecementos adquiridos e a súa capacidade de resolución de problemas en contornos novos ou pouco coñecidos dentro de contextos máis amplos (ou multidisciplinares) relacionados coa súa área de estudo.
A3	(*)Que os estudantes sexan capaces de integrar coñecementos e se enfrontar á complexidade de formular xuízos a partir dunha información que, sendo incompleta ou limitada, inclúa reflexións sobre as responsabilidades sociais e éticas vinculadas á aplicación dos seus coñecementos e xuízos.
A4	(*)Que os estudantes saiban comunicar as súas conclusións, e os coñecementos e razóns últimas que as sustentan, a públicos especializados e non especializados dun xeito claro e sen ambigüidades.
A5	(*)Que os estudantes posúan as habilidades de aprendizaxe que lles permitan continuar estudando dun xeito que terá que ser, en grande medida, autodirixido e autónomo.
B1	Utilización de criterios y métodos científicos en el planteamiento y resolución de problemas aplicando los conocimientos adquiridos
B2	Búsqueda, análisis e integración de información a partir de diferentes fuentes y capacidad para su interpretación y evaluación
B6	Desarrollo de la curiosidad científica, de la iniciativa y la creatividad
C2	Conocimiento de la diversidad de organismos marinos y sus estrategias adaptativas
C3	Conocimiento y comprensión de las interacciones de los organismos marinos y los ecosistemas marinos y costeros
C7	Catalogación, evaluación, conservación, restauración y gestión de áreas marinas y litorales protegidos. Elaboración, asesoramiento legal y ejecución de planes de ordenación del litoral
C14	Elaboración, discusión, interpretación, asesoramiento y peritaje de informes científico-técnicos, éticos, legales y socioeconómicos relacionados con el ámbito marino y pesquero
D1	Desarrollo de las capacidades comprensivas, de análisis y síntesis
D4	Desarrollo de la capacidad para actualizar el conocimiento de forma autónoma
D5	Desarrollo de las habilidades de comunicación y discusión de planteamientos y resultados

Learning outcomes

Expected results from this subject	Training and Learning Results
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New	A2 A3 B1 B2 C2 C3 D1
New	A2 A3 A5 B1 B2 C2 C3 C7 C14 D1 D4
New	A1 A2 A4 A5 B2 B6 D1 D4 D5
New	B1 B2 C2 C3 C7 D1
New	A1 A3 A4 B6 D1 D5
New	A5 B2 D1 D4
New	A3 A5 B1 B2 C2 D4

Contents

Topic	
Generalities	Subject 1. Half marine. Introduction and general characters. Influential environmental factors in the photosynthetic organisms: light, temperature, *sustrato, *hidrodinamismo, tides, salinity, pH, nutrients and *contaminantes. Interactions between organisms: *depredación, *simbiosis, *epibiosis, *endobiosis, parasitism. Subject 2. Phytoplankton. General characters, importance, groups *florísticos and populational dynamics. Subject 3. *Fitobentos. General characteristics of the communities *fitobentónicas and classification of the organisms *bentónicos according to the *sustrato. Adaptations to the conditions of the half. Morphological diversity, vital cycles, biological types and vital forms.

Diversity	Subject 4. Descriptive and systematic of red seaweeds (*Rhodophyta): main groups and characteristic species. Subject 5. Descriptive and systematic of seaweeds *pardas (*Ochrophyta): main groups and characteristic species. Subject 6. Descriptive and systematic of green seaweeds (*Chlorophyta): main groups and characteristic species. Subject 7. Descriptive and systematic of other organisms *bentónicos: *cianofíceas, phanerogams, funguses and *líquenes: main groups and characteristic species.
Ecology and biogeography	Subject 8. Ecology of the *fitobentos. Distribution of the marine organisms: vertical or zonation, temporary or succession and space or *biogeográfica. Diagrams of zonation of the seaboard and his nomenclature. *Estacionalidad Of the flora. Subject 9. Biogeography. Definition, methodology and indexes. Factors that influence in the distribution of the marine vegetables: temperature and latitude. Units *biogeográficas. Subject 10. Marine marine vegetation in the Atlantic North and Mediterranean. Subject 11. Marine vegetation of the Iberian Peninsula and of Galicia. Exposed coasts, *semiexpuestas, protected and *estuáricas: diversity, descriptive and zonation.
(*)	(*)
(*)	(*)
(*)	(*)
(*)	(*)
(*)	(*)
(*)	(*)
(*)	(*)
(*)	(*)

Planning			
	Class hours	Hours outside the classroom	Total hours
Master Session	12	6	18
Seminars	8	24	32
Group tutoring	2	2	4
Tutored works	0	21	21
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	
	Description
Master Session	FACE-TO-FACE CLASSES FOR EXHIBITION, BY PART OF THE PROFESSOR, OF THE CONTENTS OF THE MATTER And THE DEVELOPMENT OF THE *TEMARIO, EXPLANATION OF CONCEPTS And APPROACH OF THE SEMINARS.
Seminars	AUTONOMOUS WORK OF THE STUDENT FOR THE STUDY And ASSIMILATION OF THEORETICAL And PRACTICAL CONCEPTS, AS WELL AS FOR THE RESEARCH OF INFORMATION And BIBLIOGRAPHY FOR THE REALISATION OF THE WORKS RELATED WITH THE SEMINARS.
Group tutoring	You INTERVIEW WITH THE *PROFESORADO FOR THE ADVICE And DEVELOPMENT OF THE ACTIVITIES OF THE MATTER IN THE PROCESS OF THE LEARNING.
Tutored works	WORKS/DOCUMENTS/INFORMATION ELABORATED BY THE STUDENT, OF AUTONOMOUS WAY, FOR THE DEVELOPMENT OF THE SEMINARS. ALWAYS, UNDER THE GUIDELINES OF THE PROFESSOR IN WHAT it CONCERNS To THEMATIC, QUESTIONS To DEVELOP And USES OF SOURCES OF INFORMATION.

Personalized attention	
Methodologies	Description
Group tutoring	It will attend to the students personally *via face-to-face in the classroom and by email

Assessment

Description		Qualification	Training and Learning Results			
			A2	B1	C2	D1
Master Session	(*)It will evaluate by means of an objective proof written that will include ask type test, definitions, short questions, subjects to develop and study of photographs.	70	A3	B2	C3	D5
			A4		C7	
Seminars	(*)It will evaluate the attitude and the degree of participation (asks/answer) by part of the student in each one of the seminars.	20	A1	B1	C7	D4
			A2	B2	C14	
			A3	B6		
			A5			
Tutored works	(*)It will evaluate the content and quality of the work realised by the student in the thematic of the seminars.	10	A2	B6	C14	D1
			A4			D5

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Lobban, C.S. & P.J. Harrison, **Seaweed ecology and physiology**, 1994,

Graham, L. E., J. M Graham & L. W. Wilcox, **Algae**, 2009,

Dawes, C.J., **Marine Botany**, 1997,

Lüning, K., **Seaweeds their environment, biogeography and ecophysiology**, 1990,

Reviere, B de, **Biologie et phylogénie des algues, tome 1, 2**, 2002, 2003,

Hoek, C. van den, D.G. Mann, H.M. Jahns, **Algae: An Introduction to phycology**, 1995,

Guiry & Guiry, <http://www.algaebase.org/>, 2015,

Green, E.P. & F.T. Short, **World Atlas of Seagrasses**, 2003,

Guillén, J.E., Ruiz, JM, Otero, M, Díaz-Almela, E., **Atlas de las praderas marinas de España**, 2014,

Recommendations

Subjects that continue the syllabus

Biology of Exploited and Potentially Exploitable Species/V02M098V01207

Invasive Species and Fouling/V02M098V01211

Sampling Techniques for Identification of Marine Organisms and Communities/V02M098V01201

Subjects that are recommended to be taken simultaneously

Marine Ecology/V02M098V01105

Physiology of Marine Organisms/V02M098V01106

Marine Zoology/V02M098V01103