



## COURSE DATA

Data Subject	
<b>Code</b>	33060
<b>Name</b>	Marine biology
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	5.0
<b>Academic year</b>	2019 - 2020

### Study (s)

Degree	Center	Acad. Period year
1100 - Degree in Biology	Faculty of Biological Sciences	4 Annual

### Subject-matter

Degree	Subject-matter	Character
1100 - Degree in Biology	15 - Complements of biodiversity and conservation	Optional

### Coordination

Name	Department
PEÑA CANTERO, ALVARO LUIS	355 - Zoology

## SUMMARY

The subject Marine Biology, with 5 credits ECTS, forms part of the Academic Pathway **Additions to Biodiversity and Conservation** of the 4th year of the degree in Biology.

**Marine Biology** provides an introduction to the study of life in the oceans. It begins with the study of the major differences with the terrestrial environment and the main divisions of the oceans. It continues with the study of the main physical and chemical characteristics of the oceans. Next, it reviews the pelagic domain, its characteristics and main divisions, organisms inhabiting these ecosystems and key processes occurring in them. Finally, it goes on with the study of the benthic domain, again studying its principal characteristics and divisions, organisms and processes that characterize the ecosystems linked to the seabed.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

## OUTCOMES

### 1100 - Degree in Biology

- Conocer la diversidad de los seres vivos.
- Conocer la diversidad de los ecosistemas.
- Conocer las adaptaciones funcionales al medio.
- Conocer las interacciones entre especies.
- Conocer los flujos de energía y ciclos biogeoquímicos en los ecosistemas.
- Comprender las características distintivas y problemática del medio marino.
- Caracterizar las comunidades del medio marino.

## LEARNING OUTCOMES

- Understand and correctly apply scientific concepts and terminology used in the field of Marine Biology.
- Understand the distinctive characteristics and problems of the marine environment.
- Recognize and identify the most common flora and fauna of the Mediterranean coast.
- Identify the main functional adaptations of marine organisms in the pelagic and benthic environments.
- Recognize the structure, performance and basic dynamics of benthic and pelagic communities.
- Design and carry out sampling of representative communities and ecosystems of the Mediterranean sea.

## DESCRIPTION OF CONTENTS

### 1. Introduction and overview

Item 1. Development of Marine Biology. Terrestrial vs. marine ecosystems. Major subdivisions of the marine environment.



## **2. Physical and chemical characteristics of the oceans**

Item 2. Water: composition and properties. Sea water: general composition and major constituents. Salinity. Temperature. Density. Dissolved gases. Minor constituents. Nutrients. Solar radiation. Hydrostatic pressure. Movement of water bodies: surface ocean circulation and thermohaline circulation. Waves. Tides.

## **3. The pelagic environment**

Item 3. Epipelagic. Plankton and Nekton: biodiversity. Vertical migrations. Epipelagic food webs. Production patterns.

Item 4. The deep-sea pelagic environment. Food sources. Mesopelagic: biodiversity. Migratory and non-migratory. Deep scattering layer. Adaptations. Deep Sea: environmental characteristics. Adaptations.

## **4. The benthic environment**

Item 5. Intertidal. Hard substrates. Environmental factors. Vertical zonation. Causes of zonation: physical and biological factors. Soft substrates. Environmental factors and zonation.

Item 6. Estuaries. Origin and types. Circulation and sedimentation. Physical characteristics. Biology of estuaries. Estuarine communities.

Item 7. Subtidal. Physical characteristics. Communities of soft substrata. Communities of hard substrata. Deep-sea benthos.

## **WORKLOAD**

<b>ACTIVITY</b>	<b>Hours</b>	<b>% To be attended</b>
Theory classes	25,50	100
Laboratory practices	22,00	100
Tutorials	2,50	100
Study and independent work	75,00	0
<b>TOTAL</b>	<b>125,00</b>	

## **TEACHING METHODOLOGY**

The course will be conducted through the following activities:

- Theoretical classes in which the most important contents of each issue are identified and exposed.
- Practical classes, made in the form of field trips (if possible) and laboratory sessions. Sampling and field data collection are first carried out and then processed and analyzed in the laboratory. The practical sessions are carried out during the second term.
- Seminars.



## EVALUATION

The evaluation of the course will be conducted through the following mechanisms. There will be a written test, which represents 70% of the final mark, with the aim of assessing the assimilation and understanding of the theoretical content of the course. In assessing the knowledge acquired in the practical part, which represent up to 20% of the final mark, it will be taken into account attendance and compliance with the objectives of each field trip and laboratory session, through forms and workbook. Finally, we will evaluate the seminar and class presentation with up to 10%. It must be obtained at least five out of ten in the theory exam and 50% of the total to pass the course. The second call will be reserved for students who have not passed the theoretical or want up the mark.

To request the advancement of the subject call, students must have completed the compulsory activities indicated in the course guide.

## REFERENCES

### Basic

- Castro, P., Huber, M.E. (2007) Biología Marina. McGraw-Hill Interamericana.
- Cognetti, G.; Sarà, M.; Magazzù, G. (2001) Biología Marina. Ariel Ciencia. Barcelona.
- Levinton, J.S. (2009). Marine Biology. Function, biodiversity, ecology. Oxford University Press.
- Nybakken, K.J. (1983). Marine Biology: an ecological approach. Wiley. Chichester.

## ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

### 1. Contenidos

Se mantienen los contenidos inicialmente recogidos en la guía docente.

Toda la parte teórica de la asignatura, incluyendo su evaluación, se realizó antes de la suspensión de las actividades presenciales.

En relación a las prácticas, una parte importante también se desarrolló de forma presencial. La restante, que se mantiene, se desarrolla de forma no presencial.

### 2. Volumen de trabajo y planificación temporal de la docencia

Mantenimiento del peso de las distintas actividades que suman las horas de dedicación en créditos ECTS marcadas en la guía docente original.



No se mantienen los horarios, se ha dado libertad a los estudiantes para realizar las actividades programadas de acuerdo con su propia programación.

### 3. Metodología docente

Subida de materiales al Aula virtual

Propuesta de actividades por aula virtual

Resolución de problemas relacionados con las prácticas

### 4. Evaluación

Se mantiene el sistema de evaluación inicialmente recogido en la guía docente.

Como se ha indicado anteriormente, toda la parte teórica de la asignatura ha sido ya evaluada, restando, únicamente, parte de la parte práctica, donde se valorará la resolución de los problemas propuestos.

La evaluación de la parte teórica en la segunda convocatoria se llevará a cabo mediante exámenes orales individuales por videoconferencia en la fecha prevista.

Si una persona no dispone de los medios para establecer esta conexión y acceder al aula virtual, deberá contactar con el profesorado por correo electrónico en el momento de publicación de este anexo a la guía docente.

Si por causas técnicas, debidamente justificadas, algún estudiante no puede realizar algún examen, se realizará una prueba alternativa que, en todo caso, será de tipo ORAL.

### 5. Bibliografía

La bibliografía recomendada se mantiene pues es accesible