VNIVERSITAT DE VALÈNCIA

Course Guide
43252 Diversity, organization and functioning of marine ecosystems

COURSE DATA

Data Subject	
Code	43252
Name	Diversity, organization and functioning of marine ecosystems
Cycle	Master's degree
ECTS Credits	3.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
2148 - M.D. in Biodiversity: Conservation and Evolution	Faculty of Biological Sciences	1	Second term

Subject-matter

Degree	Subject-matter	Character
2148 - M.D. in Biodiversity: Conservation and Evolution	5 - Cross-disciplinary optional subject areas 1	Optional

Coordination

Name	Department
PEÑA CANTERO, ALVARO LUIS	355 - Zoology

SUMMARY

In this course the different marine ecosystems are presented under the perspective of their floristic-fauna composition, their organization and their functioning with respect to the flows of matter and energy among their components. It is structured in three different parts. The first part serves to introduce the marine environment and its main divisions. The other two parts are devoted to the study of the pelagic and benthic domain, its fundamental characteristics, the organisms that inhabit them and their main communities, always highlighting the continuous relationships between both divisions, which are essential for the understanding of the manifestations of life in the oceans.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

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

Other requirements

None.

OUTCOMES

2148 - M.D. in Biodiversity: Conservation and Evolution

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- To acquire basic skills to develop laboratory work in biomedical research.
- Be able to access the information required (databases, scientific articles, etc.) and to interpret and use it sensibly.
- Stimulate the capacity for critical reasoning and for argumentation based on rational criteria.
- Favour intellectual curiosity and encourage responsibility for one's own learning.

LEARNING OUTCOMES

To get the ability to:

- Demonstrate an integrated vision of the subject, enabling the knowledge acquired to be interrelated and applied.

- Show a correct handling of the terminology used.

- Develop skills for using the sources of scientific information.

- Retrieve, analyse and synthesise scientific information.

- Present and disseminate scientific information.

- Work in group when faced with problematic situations.

- Elaborate comprehensible and well-organised written texts.

- Make a public oral presentations in a clear and coherent manner, encouraging communication and discussion of contents.

- Obtain relevant information to face new scientific challenges.

- Apply critical thinking.

- Acquire interpersonal skills, responsibility, autonomy, teamwork, decision-making and entrepreneurial spirit.

DESCRIPTION OF CONTENTS

1. Introduction to the marine environment

Main characteristics of the oceans. Zonation and characteristics of the pelagos and benthos.

2. The pelagic domain

Main components of marine phytoplankton and zooplankton. Meroplankton. Nekton. Primary productivity in the water column and factors determining it. General production models. Productivity in different marine environments. Pelagic food webs.

3. The benthic domain

Characterisation of the benthic environment. Zonation models. Main benthic ecosystems. Deep benthos. Deep Sea food sources. Singular communities.

WORKLOAD

ACTIVITY	Hours	% To be attended
Laboratory practices	20,00	100
Theory classes	10,00	100
Development of group work	20,00	0
Study and independent work	25,00	0
TOTAL	**75,00**	

TEACHING METHODOLOGY

The theoretical classes will be developed following the model of a master class, since it is the model that allows to emphasize the most essential of each subject and to control the appropriate development of the subject.

Seminars, which are compulsory, will be prepared by the students on topics proposed by the teacher in order to go deeper into topics of special interest. Students will prepare oral presentations on these topics, which will be presented in class and handed in for assessment.

The practical activities of the course include field trips to study marine communities in situ and their sampling for subsequent study in the laboratory. Attendance to the practical activities will be compulsory, as well as the presentation of a report on them.

Tutorials will be held to solve the questions and doubts raised by the students with respect to the topics explained.

All the activities will be managed through the University of Valencia's Virtual Classroom platform, which will also serve as a means of communication.

EVALUATION

he evaluation will cover three aspects. There will be a written test, which represents 50% of the final mark, with the aim of assessing the assimilation and understanding of the theoretical content of the course. The seminar and its presentation in class will be marked with a maximum of 3 points. In the evaluation of the practical part of the course, which will represent up to 2 points of the final grade, the student's attendance to the field trips, his/her participation and a report on the practical activities carried out will be taken into account.

t must be obtained at least five out of ten in the theory exam and 50% of the total score to pass the course.

REFERENCES

Basic

- Castro, P., Huber, M.E. (2016) Marine Biology. McGraw-Hill Education.
- Herring, P. (2002) The Biology of the Deep Ocean. Oxford University Press.
- Levinton, J.S. (2009). Marine Biology. Function, biodiversity, ecology. Oxford University Press.
- Nybakken, K.J. (1983). Marine Biology: an ecological approach. Wiley. Chichester.
- Margalef, R. (1989). El Mediterráneo Occidental. Ediciones Omega, Barcelona. 374 pp.
- Pérès, J.M. (1967). The Mediterranean Benthos. Oceanogr. Mar. Biol. Ann. Rev. 5: 449-533.