

**COURSE DATA****Data Subject**

Code	43242
Name	Systematics and ecology of marine invertebrates
Cycle	Master's degree
ECTS Credits	3.0
Academic year	2023 - 2024

Study (s)

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

Subject-matter

Degree	Subject-matter	Character
2148 - M.D. in Biodiversity: Conservation and Evolution	3 - Biodiversity and conservation of invertebrates	Optional

Coordination

Name	Department
MONTERO ROYO, FRANCISCO ESTEBAN	355 - Zoology
PEÑA CANTERO, ALVARO LUIS	355 - Zoology

SUMMARY

Ecology and Systematics of Marine Invertebrates is a required subject taught in the first semester of the Master in Biodiversity: Conservation and Evolution (Itinerary II) and consists of 3 ECTS credits.

The teachers of the subject assume that the students have basic knowledge about the main groups of marine invertebrates, so in this subject it is intended to deepen and complete biological and ecological aspects, focusing basically on their natural history, morphology and systematics. This subject also offers basic knowledge to tackle other electives of this same itinerary.

This subject has a mixed theoretical-practical nature that includes theoretical sessions and practical sessions for processing, observation and identification of marine fauna, which will allow exercising the concepts and techniques studied and familiarizing the student with the different groups of invertebrates and their main habitats.



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.
- Awaken interest in the social and economic application of science.
- Encourage ethical commitment and environmental awareness.

LEARNING OUTCOMES

To:

- Recognize the organizational, morphological and anatomical models of the main marine invertebrate taxa and identify the main groups.
- Define the marine environments in which they live.
- Understand the main modes of feeding and nutrient acquisition.
- Relate the vital cycles and modes of reproduction of each group.
- Analyze the main ecological interactions between invertebrates.
- Discuss the evolutionary relationships between invertebrate taxa.



- Learn techniques for sampling and identification and ecological analysis of benthic invertebrates from different Mediterranean communities.

DESCRIPTION OF CONTENTS

1. Block 1. The marine environment

Presentation of the main divisions of the oceans, both the pelagic domain and the benthic domain, as well as their most important characteristics.

2. Block 2. Systematic and ecological study of marine invertebrates.

Ecological and taxonomic characterisation of the main groups of marine invertebrates. Identification of marine macroinvertebrate taxa.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	20,00	100
Laboratory practices	10,00	100
Development of individual work	20,00	0
Preparation of evaluation activities	10,00	0
Preparing lectures	5,00	0
Preparation of practical classes and problem	10,00	0
TOTAL	75,00	

TEACHING METHODOLOGY

The course will start with a full group session in which the main divisions of the oceans and their most important features will be presented. Likewise, the fundamental elements for the development of the subject will be introduced.

The practical activities of the course include a field trip to take samples in different marine communities, which will be the basis of the work that students will carry out in the laboratory sessions and of the report that they will have to write.

The rest of the sessions will be theoretical-practical with an introduction to the main taxonomic groups, with emphasis on identification methods and diagnostic characters, followed by the sorting and identification, by the students, of the fauna present in the assigned samples.



Attendance will be compulsory. In addition, it will be necessary to prepare a report on the results of the study of the assigned sample, with a compulsory format that will be indicated at the beginning of the course and that will serve as a basis for the evaluation of the subject.

EVALUATION

For the evaluation of students it will be essential that they attend all the sessions. The evaluation will take into account the students' participation and attitude towards the subject, and the report on the assigned samples, for which it will be necessary to obtain a minimum of five points (out of 10).

REFERENCES

Basic

- BARNES, R. S. K.; CALOW, P.; OLIVE, P. J. W.; GODING, D. W. y SPICER, J. I. 2001. The Invertebrates. A synthesis. Third edition. Wiley-Blackwell, Oxford. 497 pp.
- BRUSCA, R.C. ; MOORE, V ; SHUSTER, S.M. (2016). Invertebrates. (3ª Edition). Ed. Sinauer Associates, Inc., Sunderland, Massachusetts, USA.
- NIELSEN, C. 2001. Animal evolution. Interrelationships of the living phyla. Second edition. Oxford University Press, Oxford. 563 pp.
- PEARSE, V., PEARSE, J., BUCHSBAUM, M. & BUSCHSBAUM, R. (1987). Living Invertebrates. Blackwell Scientific. Boston, Massachusetts.
- PECHENIK, J.A. (2005). Biology of Invertebrates. Mc Graw-Hill. Boston, Massachusetts.
- RUPPERT, E.E. & BARNES, R.D. (1995). Zoología de los Invertebrados. McGraw-Hill. Interamericana. Madrid.

Additional

- D'ANGELO, G. & GARGIULLO, S. (1978). Guida alle conchiglie mediterranee. Conocerle cercare collezionarle. Fabri. Milano.
- FALCIAI, L. & MINERVINI, R. (1995). Guía de los Crustáceos Decápodos de Europa. Omega. Barcelona.
- FOLCH, R. (1992). Història Natural dels Països Catalans. Enciclopèdia Catalana. Barcelona.
- GUERRA, A. (1992). Mollusca, Cephalopoda. En: Fauna Ibérica, vol. 1. Ramos, M.A. et al. (Eds.) Museo Nacional de Ciencias Naturales. CSIC. Madrid.
- HOFRICHTER, R. (Ed.) (2005). El Mar Mediterráneo. Fauna, flora, ecología. Vol II/1: Guía sistemática y de identificación (procariotas, protistas, hongos, algas, animales (hasta Nemertea). Omega. Barcelona.



- HOUSEMAN, J. (2002). Digital Zoology. Version 1.0. CD Rom and Student Workbook. McGraw-Hill. New York.
- RIEDL, R. (2000). Fauna y Flora del Mar Mediterráneo. Omega.
- SAIZ SALINAS, J.I. (1993). Sipuncula. En: Fauna Ibérica, vol. 4. Ramos, M.A. et al. (Eds.) Museo Nacional de Ciencias Naturales. CSIC. Madrid.
- SOUTHWARD, A.J. & D.J.C. ,CRISP (1963). Catalogue des Principales Salissures Marines. Balanes. Vol. 1. Centre de Recherche d'Etudes Oceanographiques. Paris.
- VIEITEZ, J.M., ALÓS, C., PARAPAR, J., BESTEIRO, C., MOREIRA, J., NÚÑEZ, J., LABORDA, J. & SAN MARTIN, G. (2004). Annelida Polychaeta I. En: Fauna Ibérica, vol. 25. Ramos, M.A. et al. (Eds.) Museo Nacional de Ciencias Naturales. CSIC. Madrid.