

Survey of Natural Environment

Code: 100829
ECTS Credits: 6

Degree	Type	Year	Semester
2500251 Environmental Biology	OB	1	2

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

Name: Anselm Rodrigo Domínguez
Email: Anselm.Rodrigo@uab.cat

Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

Sergi Pla Rabes
Juan Goma Martinez
Ana Morton Juaneda
Francesc Xavier Munill Bernardich
Maria Font Rifa
Anna Soler Membrives

Prerequisites

There are no prerequisites to follow the course successfully.

Objectives and Contextualisation

The goal of this subject is to be an introduction to the study of biodiversity through the direct exploration of the natural environment. So, the subject includes the learning of different techniques applied in the location and identification of organisms in their own environment. It is therefore a subject with a great dedication to field work through the prospection of different natural environments.

It allow a general vision to introduce students s in different sampling techniques from different groups of organisms (the knowledge of which will be deepened in other subjects) in different environments, as well as in the quantification of this diversity

They also include to work different methodological and transversal skills that will be useful for the subjects of the rest of the studies of Environmental Biology.

The most specific objectives of the subject are the following:

Know how to measure the diversity and richness of species and their spatial and temporal variability.

Learn that is necessary identify the different habitats previous to prospect a zone.

Recognize how environmental factors influence the diversity of species.

Know how to measure the spatial distribution of organisms.

Understand the concept of functional group.

Learn about the main techniques of terrestrial invertebrate sampling and the advantages and disadvantages of each one.

Know the main techniques of marine fauna sampling and the advantages and disadvantages of each one.

Recognize the main groups of terrestrial invertebrates and for insects recognize the main orders.

Recognize the main groups of marine animals in the Mediterranean coastline.

Recognize the main families of plants.

Recognize some of the most abundant seaweed and marine plants on the Mediterranean coast.

Recognize the most abundant trees and shrubs of the Mediterranean and mountain forests.

Learn how to correctly collect (preservation, labeling, etc.) the different organisms

Competences

- Adapt to new situations.
- Adopt an ethical stance.
- Communicate efficiently, orally and in writing.
- Describe, analyse and assess the natural environment.
- Exercise leadership.
- Identify and interpret the diversity of species in the environment.
- Obtain information, design experiments and interpret results.
- Sample, characterise and manipulate populations and communities.
- Take the initiative and demonstrate an entrepreneurial spirit.

Learning Outcomes

1. Adapt to new situations.
2. Adopt an ethical stance.
3. Communicate efficiently, orally and in writing.
4. Describe the components of the physical environment, identify the natural factors that determine the types of communities present and analyse the types of vegetation.
5. Exercise leadership.
6. Obtain information, design experiments and interpret results.
7. Perform inventories of organisms, sample populations and identify communities.
8. Recognise in the field the principal plants, animals and organisms that are characteristic to the communities in our environment.
9. Take the initiative and demonstrate an entrepreneurial spirit.

Content

Concept of diversity, biodiversity and species richness and its quantification

Main plants, algae and fungi sampling techniques

Main various faunistic groups sampling techniques

Methodological bases for the organisms identification.

Methodological bases for the conservation and cataloging of organisms.

Basic statistical treatments of diversity censuses

Spatial and temporal variability effects of on biological diversity.

Effect of abiotic factors on species diversity at local and regional scale

Effect of the sampling effort on diversity measures: sampling design, calculation and interpretation of species accumulation curves

Methodology

This subject is organized with a totally practical character and is structured around two field trip with the following activities structure

1. Introductory session
- 2 Field trip (which includes evaluation activities)
3. Analysis of samples obtained in field
4. Data analysis
5. Evaluation activities

In addition there is a final evaluation that involves learning from both field trips

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Data analysis of field trip 1	6	0.24	3, 4, 5, 9, 7
Data analysis of field trip 2	4	0.16	3, 4, 7
Discussion of field trip 1 data	4	0.16	3, 4, 5, 9, 7
Field trip 1	32	1.28	1, 4, 5, 9, 7, 8
Field trip 2	24	0.96	1, 4, 5, 9, 7, 8
Laboratoy of field trip 1	8	0.32	8
Laboratoy of field trip 2	10	0.4	7, 8
Oral presentation discussion	4	0.16	1, 3, 9
Preparation field trip 2	4	0.16	3, 4, 7
Preparation filed trip 1	4	0.16	4, 7
Preparation of the oral presentation	3	0.12	3
Type: Autonomous			
Study	15	0.6	8
Team working	27	1.08	1, 3, 4, 5, 9

Assessment

Attendance at all field trips, laboratory and computer sessions are mandatory for overcome the subject.

First trip paper (30% of the final mark)

It will be done for each team of 4-5 people who have worked together in field and consist of a scientific article with the data obtained in the field work.

A first version of the work is corrected by the teacher and scored over 10. The results of the correction with some suggestions for improvement is communicated to the Students, Then the student can accept this first mark or they may voluntarily submit a second version to improve the mark The mark of the second version, which can not exceed three points of the first version, is the definitive mark

A final "visum" test (20% of the final mark)

The student finishes the subject with a list of organisms that he / she must know how to identify from "visu" At the end of the semester there will be a test written where it is necessary to recognize, from images or samples, some of these organisms.

Oral presentation related to the field trip 2 (25% of the final mark)

It will be necessary to make a small oral presentation of half an hour (including questions) for teams of 4 students who have worked together in the field highlighting the biodiversity observed in the studied area

Learning portfolio (25% of the note)

It consists of a series of short works made for the students during the field trip, laboratory sessions or data analysis sessions They will be corrected during the course. In some cases, it will be a question about some data obtained in field work or short evaluation tests carried out in the laboratory. It is included also the evaluation of the field notebook.

Student observation guide (add a value between -2 and 1 to the note)

The aim of this observation guide is to identify if the students reach attitudinal competences (CT14, CT17, CT19 and CT20 in section 5) through the observation by the different teachers. The maximum negative grade will also be applied, depending on the criteria of teachers, in those cases of non-compliance with the basic rules of coexistence in field trips.

Minimum note to pass the subject

To pass the course, it is necessary to obtain a global average mark equal to or higher than 4,9 and a mark equal to or higher than 3.5 in paper, final visum, oral presentation and learning portfolio.

The students will obtain the grade of "Not Evaluable" when the evaluation activities carried out have a weight of less than 67% in the final grade

"The students will obtain the Not Evaluable" rating when your absence is greater than 20% of the scheduled sessions

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Final "visum"	20	1	0.04	7, 8
Learning portfolio	25	0	0	2, 4, 7, 8
Oral presentation	25	3	0.12	1, 3, 4, 7, 8
Paper correction	30	1	0.04	3, 4, 5, 6, 9, 7
Student observation guide	between -2 and +1 adding to the final note	0	0	1, 5, 9

Bibliography

References

- Arnold EN, Ovenden D (2007) Reptiles y anfibios. Guía de campo. Omega, *Barcelona*.
- Bang P, Dahlstrom P (1999) Huellas y señales de los animales de Europa. Omega, *Barcelona*.
- Barrientos JA (2004) Curso práctico de entomología. UAB, *Bellaterra*.
- Bergbauer M, Humberg B (2001) Flora y fauna submarina del mar Mediterráneo. Omega, *Barcelona*.
- Blanco E & al. (1998) Los Bosques Ibéricos. Ed. Planeta.
- Bolòs O & Vigo J (1984-2001) Flora dels Països Catalans, vols. 1-4. Ed. Barcino. *Barcelona*.
- Bolòs O, Vigo J, Masalles RM, Ninot JM (2005) Flora Manual dels Països Catalans. Ed. Pòrtic.
- Cambra J, Gómez J, Rull J (1989) Guia de les algues i els líquens dels Països Catalans. Ed. Pòrtic. *Barcelona*.
- Chinery M (2005) Guía de campo de los insectos de España y Europa. Omega, *Barcelona*.
- Folch R (1986) La vegetació dels Països Catalans. Ketres. ed.
- Folch R, Franquesa T, Camarasa JM (1984) Vegetació. Història Natural dels Països Catalans, vol. 7. Ed. Enciclopèdia Catalana.
- Gràcia E & Sanz M M (1989) Guia de les molses i les falgueres dels Països Catalans. Ed. Pòrtic. *Barcelona*.
- Henderson PA (2003) Practical methods in Ecology. Blackwell Publishing, *Oxford*.
- Llimona X & al. (eds.) (1985) Plantes inferiors. Història Natural dels Països Catalans, vol. 4. Ed. Enciclopèdia Catalana.
- Liistosella-Vidal, J, Sánchez-Cuixart (2015) Guia il.lustrada per a conèixer els arbres. Publicacions i edicions Universitat de Barcelona
- Liistosella-Vidal, J, Sánchez-Cuixart (2020) Guia il.lustrada per a conèixer arbusts i les lianes. Publicacions i edicions Universitat de Barcelona
- López González G (2001) Guía de los árboles y arbustos de la Península Ibérica y Baleares. Ediciones Mundi-Prensa.
- Masalles R M & al. (eds.) (1988) Plantes superiors. Història Natural dels Països Catalans, vol. 6. Enciclopèdia Catalana. *Barcelona*.
- Masclans F (1990) Guia per a conèixer els arbres. Ed. Montblanc.
- Masclans F (1990) Guia per a conèixer els arbusts i les lianes. Ed. Montblanc.
- Mullarney K, Svensson L, Zetterström D, Grant PJ (2006) Guía de aves, la guía de campo de aves de España y Europa más completa. Omega, *Barcelona*.
- Riedl R (2000) Fauna y flora del mar Mediterráneo. Omega, *Barcelona*.
- Samo Lumbreras A, Garmendia Salvador A, Delgado, JA (2008) Introducción práctica a la Ecología. Pearson Educación, *Madrid*.
- Townsend CR, Harper JL, Begon M (2003) Essentials of Ecology (2ª Ed.). Blackwell Science, *Oxford*.

web links:

Anthos. Sistema de información sobre las plantas de España. Fundación Biodiversidad y Real Jardín Botánico de Madrid (CSIC): <http://www.anthos.es>

Atles Climàtic Digital de la Península Ibèrica: <http://www.opengis.uab.es/WMS/iberia/index.htm>

Atles Climàtic Digital de Catalunya: <http://www.opengis.uab.es/WMS/acdc/index.htm>

Banc de dades de Biodiversitat de Catalunya: <http://biodiver.bio.ub.es/biocat/homepage.html>

Estimates: Biodiversity estimation. <http://viceroy.eeb.uconn.edu/EstimateS>

Flora Catalana: <http://floracatalana.net>

Flora Iberica: <http://www.floraiberica.org/>

Virtual Herbarium of the western Mediterranean : <http://herbarivirtual.uib.es/>

Herbari virtual de la UAB: <http://blogs.uab.cat/herbari/>

Software

R-Studio, Microsoft Excel and EstimateS