

Degree programme	Type	Course
Environmental Sciences	OB	2

Contact lecturer

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Group languages

You can consult this information at the [end](#) of the document.

Prerequisites

There are no official prerequisites, but it is convenient for students to review the contents related to biology of organisms and systems, as well as to ecology, learnt at high school.

Objectives

The objectives of the Animal Biology part are to introduce the student to the main groups of animals, their basic characteristics, their position and functional role in ecosystems and their importance in relation to humans from a social, economic and health perspective.

The objectives of the Plant and Fungal Biology (Botany) part are to introduce the student to the main groups of plants and fungus addressed, their respective differential features and the fundamental aspects of their biology, biological function and distribution.

In addition, general notions about systematics and taxonomy are provided, as well as an insight into the phylogenetic relationships among the main groups of animals and plants as a result of evolutionary and adaptive processes.

The ultimate goal is that the students are able to value the importance of all these organisms in the environment, an essential requirement to make good assessments, management actions and legislations.

Learning outcomes

- KM50 (Identify and assess the biological function of organisms and the plant landscape in relation to an environmental problem.) Identify and assess the biological function of organisms and the plant

- landscape in relation to an environmental problem.
- SM50 (Characterise specimens, populations and biological communities.) Characterise specimens, populations and biological communities.
- SM51 (Safely use techniques and instruments for the analysis of biological samples in the field and/or laboratory.) Safely use techniques and instruments for the analysis of biological samples in the field and/or laboratory.

Contents

COMMON CONTENTS

Introduction to the subject. The ordering of organisms: foundations of phylogenetic systematics.

PLANT AND FUNGAL BIOLOGY

Block I: Nuclear and somatic organization in the plant and fungal world: Prokaryotes and eukaryotes. Protophytes, Thalophytes and Cormophytes. Asexual and sexual reproduction. Biological cycles. Sporophyte and gametophyte generation.

Block II: Plant Diversity, general characteristics, ecology and interest: Cyanobacteriae and algae; Bryophytes; Vascular cryptogams; Flowering plants.

Block III: Fungal Diversity, general characteristics, ecology and interest: Amoeboid Fungi, Pseudofungi and True Fungi. Lichenized fungi and mycorrhizae.

Block IV: Geobotany: Distribution of plants, determining factors and vegetation dynamics. Vegetation of Catalonia.

ANIMAL BIOLOGY

Block I: Introduction to Zoology. The structural pattern of animals. Animal reproduction. Introduction to animal phylogeny.

Block II: Animal diversity. Poriferans. Cnidarians. Bilateral animals. Protostomes and Deuterostomes. Lophotrochozoans: Flatworms, Annelids and Mollusks. Ecdysozoans: Nematodes and Arthropods. Deuterostomes: Echinoderms and Chordates.

Block III: Animals as natural heritage. Threats to zoological diversity. Causes of conservation "In situ" and "Ex situ". Threat categories. Legal framework for the conservation of threatened fauna in Catalonia and in Spain.

Block IV: Animals harmful to humans. Concept of pest. Urban, agricultural and forestry pests. Environmental problems of the use of chemical pesticides. Integrated control and biological control of pests.

CLASSROOM PRACTICAL SESSIONS

Sessions 1 and 2: Application of animals as bioindicators

PRACTICAL PROGRAMME

I. MARINE FAUNA DIVERSITY

Field Practical: Sampling and diversity of marine fauna

II. PLANT AND FUNGAL DIVERSITY

Field Practical: Diversity of plants and fungi on the UAB campus

Laboratory Practical 1: Introduction to plant observation and identification of key landscape species (in preparation for the field practical)

Laboratory Practical 2: Observation of cyanobacteria, algae, and fungi

Laboratory Practical 3: Observation of bryophytes, vascular cryptogams, and flowering plants

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Tutorials	10	0.4	KM50, SM50, SM51
Classroom practical lessons	2	0.08	KM50, SM50
Search for information and problem solving	12	0.48	KM50, SM50
Theoretical lessons	28	1.12	KM50, SM50
Study and self-learning	72	2.88	KM50, SM50
Field practical lessons	9	0.36	KM50, SM50, SM51

The methodology used in this course is based on encouraging students to work with the information made available to them through different learning strategies. The theoretical lessons and classroom practical lessons, as well as field and laboratory practical lessons, are conceived in an integrated way so that students will relate the contents of these different activities throughout the subject to achieve the indicated learning objectives. The different activities are described in more detail below.

Theoretical lessons: During these lessons, students acquire the basic scientific-technical knowledge of the subject that they must complement with the personal study of the topics addressed. Most of the theoretical sessions will consist of lectures, but in some cases, other formats can be used. During the theoretical classes, short videos related to the topics covered during the session will be regularly displayed. Informal cooperative learning techniques will also be used to work on specific concepts or content. To optimise the work done in class, students may be asked to review the content of the next session beforehand. This previous work may consist of searching for information, watching videos or solving certain questions.

Classroom practical lessons: During the two sessions of classroom practical lessons, within the Animal Biology syllabus, students will work on a topic of interest related to applied Zoology. This work will be done in small groups and based on materials provided by the teacher or obtained independently. In the first session, the topic will be introduced, the material will be provided, and work will begin. In the second session, the results of the work will be presented. There will be a general discussion and an evaluation of the activity.

Laboratory and field practical sessions: During the laboratory and field practice sessions, students will work on aspects related to the collection, observation, and identification of structures and organisms from biological samples. Attendance at all practice sessions is mandatory.

Tutorials: Individual or group tutorials will be arranged with students who request them, either in class or by email.

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.

Assessment

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes
Partial exam 2 (Animal Biology)	30%	2	0.08	KM50, SM50
Partial exam 1 (Plant and Fungal Biology)	30%	2	0.08	KM50, SM50
Evaluation of classroom practical lessons	10%	1	0.04	KM50
Evaluation of field and laboratory practical lessons	30%	3	0.12	KM50, SM50, SM51

Assessment in this course is carried out throughout the semester and consists of the following assessment activities:

Mid-term examinations:

These examinations assess students' individual acquisition of the course learning outcomes. Two mid-term examinations will be held, each covering a different part of the syllabus: one on Plant and Fungal Biology and the other on Animal Biology. Together, the two mid-term examinations account for 60% of the final course grade (30% each).

Classroom practical sessions:

Assessment will be based on the individual and group assessment activities carried out during the two classroom practical sessions. This component accounts for 10% of the final course grade. Attendance at classroom practical sessions is compulsory, and these activities are not eligible for reassessment.

In this course, the use of Artificial Intelligence (AI) technologies will be permitted exclusively for support tasks, such as literature or information searches, text editing, and translation, within the context of the classroom practical sessions. Students must clearly identify any content generated using AI, specify the tools employed, and include a critical reflection on how these tools influenced both the process and the final outcome of the activity. Failure to disclose the use of AI in this assessment activity will be considered a breach of academic integrity and may result in a partial or full penalty in the assessment grade.

Field and laboratory practical sessions:

Field practical (Animal Biology):

Assessment will be based on the submission of an activity related to the methodologies covered during the field trip. This component accounts for 10% of the final course grade.

Laboratory and field practical sessions (Plant and Fungal Biology):

At the end of each practical session, students will complete a short exercise assessing their understanding of the session, which will contribute 25% of the final Plant Biology practical grade. The remaining 75% will be obtained through a written practical examination covering the content taught during the field and laboratory practical sessions. The final Plant Biology practical grade accounts for 20% of the final course grade and must be at least 4.5 out of 10 in order to be averaged with the Animal Biology practical grade.

Overall, the field and laboratory practical components account for 30% of the final course grade.

Attendance at all field and laboratory practical sessions is compulsory. Only the Plant Biology practical component is eligible for reassessment.

Final grade and reassessment:

To pass the course, students must obtain an overall average grade of at least 5.0 out of 10, with a minimum grade of 4.5 out of 10 in each of the two mid-term examinations. In addition, students must attend all compulsory practical sessions and submit all required assessment activities.

Students who do not achieve the minimum passing grade may take the reassessment examination for one or both mid-term examinations, depending on the grades obtained.

Students wishing to improve their marks may also sit the final examination. By taking the final examination, students waive the grade previously obtained for the corresponding mid-term examination(s).

Not assessable:

Students will receive a NOT ASSESSABLE grade if the assessment activities completed account for less than 67% of the final course grade.

Single assessment:

Students opting for the single assessment system must attend the Animal Biology field trip.

Attendance at the Plant and Fungal Biology laboratory practical sessions and field trip is not compulsory.

The single assessment will consist of a comprehensive examination covering the entire theoretical syllabus (60% of the final course grade), an examination covering the Plant and Fungal Biology practical sessions (20%), and the submission of assessment activities corresponding to the classroom practical sessions and the Animal Biology field trip (10% each). The single assessment will take place on the date scheduled for the final theory examination and the Plant and Fungal Biology practical examination. Students will be entitled to a theory reassessment examination where applicable.

The same Not assessable criteria will apply as in the continuous assessment system.

Bibliography

Common resources

In this link, you will find an infographic prepared by the Library Service to facilitate the location of electronic books:

<http://www.uab.cat/doc/BibliografiaCursDigital>

- IUCN (International Union for Conservation of Nature): <http://www.iucn.org/>

- IUCN Red List web site: <http://www.iucnredlist.org/>

- Ministry for the ecological transition and the demographic challenge. National inventories:

<https://www.miteco.gob.es/es/biodiversidad/temas/inventarios-nacionales/>

- Ministry for the ecological transition and the demographic challenge. Species conservation:

<https://www.miteco.gob.es/es/biodiversidad/temas/conservacion-de-especies/>

- National Museum of Natural Sciences of Madrid (CSIC): <http://www.mncn.csic.es/>

- Natural History Museum, Londres: <http://www.nhm.ac.uk/>

- Tree of Life web Project: <http://tolweb.org/tree/>

Animal Biology

Brusca, R. C., Giribert, G., Moore, W., & Haver, N. (2023). Invertebrates (4th edition). Sinauer associates.

Ruppert, E. E., Barnes, R. D., & Fox, R. S. (2004). Invertebrate zoology: a functional evolutionary approach (7th edition). Thomson-Brooks/Cole.

Kardong, K. V. (2019). Vertebrates : comparative anatomy, function, evolution (8th edition). McGraw-Hill Education.

Hickman, C. P. (2024). Integrated principles of zoology (19th edition). McGraw-Hill LLC. Disponible en línia a: https://bibcercador.uab.cat/permalink/34CSUC_UAB/1eqfv2p/alma991010766125406709

Barrientos, J.A. (2004). Curso práctico de Entomología. Asociación Española de Entomología. CIBIO-UAB. Manuals de la Universitat Autònoma de Barcelona.

Bergbauer, M., & Humberg, B. (2002). Flora y fauna submarina del mar Mediterráneo : una guía de identificación para naturalistas, aficionados y buceadores. Omega.

Història Natural dels Països Catalans. (1991) Vols. 8-13. Ed. Enciclopèdia Catalana.

Markert, B.A., Breure, A.M. & Zechmeister, H.G. (2003) Bioindicators and biomonitors. Elsevier Science Ltd.

Jacas, J., Caballero, P. & Avilla, J. (eds) (2005). El control biológico de plagas y enfermedades. Universitat Jaime I Universidad pública de Navarra.

Jiménez Pérez, I. & Delibes de Castro, M. (eds) (2005) Al borde de la extinción: una visión integral de la recuperación de fauna amenazada en España. EVREN. Valencia

Web links:

- Animal Diversity Web: <http://animaldiversity.ummz.umich.edu/>
- International Commission on Zoological Nomenclature: <http://www.iczn.org/>

Plant and Fungal Biology

Theory:

Bresinsky, A. et al. 2013. Strasburger's Plant Sciences (Including Prokaryotes and Fungi). Springer. Berlin.[Recurs electrònic disponible a la UAB]

Evert, R. & Eichhorn, S. 2013. Raven Biology of plants. 8th ed. W.H. Freeman & Company. New York.

Folch, R., Franquesa, T. & Camarasa, J.M. 1984. Història Natural dels Països Catalans, vol 7: Vegetació. Enciclopèdia Catalana. Barcelona.

Izco, J. et al. 2004. Botánica. McGraw-Hill-Interamericana. Madrid.

Llimona, X. et al. 1985. Història Natural dels Països Catalans, vol. 4: Plantes inferiors. Enciclopèdia Catalana. Barcelona.

Masalles, R. M. et al. 1988. Història Natural dels Països Catalans, vol. 6: Plantes superiors. Enciclopèdia Catalana. Barcelona.

Mauseth, J. D. 2017. Botany. An Introduction to Plant Biology. 6th ed. Multimedia enhanced edition. Jones & Bartlett Learning. Burlington.

Nabors, M. W. 2006. Introducción a la Botánica. Pearson Addison Wesley Educación. Madrid. [Recurs electrònic disponible a la UAB]

Practical lessons:

Bolòs, O. de & Vigo, J. 1984-2001. Vols. I-IV. Flora dels Països Catalans. Barcino. Barcelona.

Bolòs, O. et al. 2005. Flora Manual dels Països Catalans. 3a edició revisada i ampliada. Pòrtic. Barcelona.

Cambra, J. et al. 1989. Guia de les algues i els líquens dels Països Catalans. Pòrtic. Barcelona.

Castroviejo, S. et al. (eds.). 1986-present. Flora iberica. Plantas vasculares de la Península Ibérica e Islas Baleares. CSIC. Madrid. <http://www.floraiberica.es>

Font Quer, P. 2015. Iniciació a la Botànica, 3a ed. revisada i actualitzada per Vallès, J. i Vigo, J. Edicions de la Universitat de Barcelona. Barcelona.

Llistosella, J. & Sánchez-Cuixart, A. 2004. L'herbari. Arbres, arbusts i lianes. Edicions de la Universitat de Barcelona. Barcelona.

Llistosella, J. & Sánchez-Cuixart, A. 2008. L'herbari: Mates, herbes i falgueres. Edicions de la Universitat de Barcelona. Barcelona.

Llistosella, J. & Sánchez-Cuixart, A. 2015. Guia il·lustrada per a conèixer els arbres. Edicions de la Universitat de Barcelona. Barcelona.

Llistosella, J. & Sánchez-Cuixart, A. 2020. Guia il·lustrada per a conèixer els arbusts i les lianes. Edicions de la Universitat de Barcelona. Barcelona.

Llistosella, J. & Bernal, M. 2022. Manual pràctic de botànica. Morfologia de les plantes vasculares. Edicions de la Universitat de Barcelona. Barcelona.

López González, G. 2001. Los árboles y arbustos de la Península Ibérica e Islas Baleares. Tomos I y II. Ed. Mundi-Prensa. [Recurs electrònic disponible a la UAB]

Saldaña Moral, A. 2025. Plantas silvestres de España peninsular. Guía fotográfica y claves para su identificación. Tundra Ediciones. Almenara.

Recasens, J. 2000. Botànica agrícola. Plantes útils i males herbes. Universitat de Lleida. [Recurs electrònic disponible a la UAB]

Vidal, J.M. & Ballesteros, E. 2022. Bolets dels Països Catalans. 2ª Ed. Brau edicions.

Wirth, V. et al. 2004. Guía de campo de líquenes, musgos y hepáticas. Omega. Barcelona.

Web links:

Catalan flora: <http://www.floracatalana.net/>

Iberian flora: <http://www.floraiberica.org/>; <http://www.floraiberica.es/>

Digital herbarium of weeds: <http://www.malesherbes.udl.cat/>

Virtual herbarium of the northwestern Mediterranean: <http://herbarivirtual.uib.es/>

European Atlas of Forest Tree Species: <https://forest.jrc.ec.europa.eu/en/european-atlas/>

Habitats of Catalonia:

https://mediambient.gencat.cat/ca/05_ambits_dactuacio/patrimoni_natural/sistemes_dinformacio/habitats/

Map of potential vegetation of Catalonia: http://atzavara.bio.ub.edu/mapes_descarrega/MVC50_Ilvp_250mil.jpg

Software

No specific software is required.

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

Type of teaching	Group	Language	Semester	Shift
(TE) Theory	1	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	1	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	1	Catalan	first semester	afternoon
(PCAM) Field practices	1	Catalan	first semester	morning-mixed
(PCAMs) Suport a les pràctiques de camp dirigides	1	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	2	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	2	Catalan	first semester	afternoon
(PCAM) Field practices	2	Catalan	first semester	morning-mixed
(PCAMs) Suport a les pràctiques de camp dirigides	2	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	3	Catalan	first semester	afternoon
(PCAM) Field practices	3	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	4	Catalan	first semester	afternoon
(PCAM) Field practices	4	Catalan	first semester	morning-mixed