

Degree programme	Type	Course
Environmental Biology	FB	1

Contact lecturer

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Group languages

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

Prerequisites

Although there are no official prerequisites, it is advisable that the student has completed the elective subjects of Biology and Earth Sciences and the Environment of the Bachelor of Science

Objectives

The ecology in the degree:

It is a first-year course that introduces students to the most basic concepts and methods of ecology. It emphasizes the relationships of organisms with the physical environment, the structure and dynamics of populations and communities, and the transfer of matter and energy within communities. The methodological aspects are treated in a shallow way since they are the object of the Natural Environment Prospection subject, which the students will attend simultaneously.

In subsequent courses, the student will complete this knowledge with a more global vision of ecology in the subject of Biosphere Sciences. They will also receive knowledge related to ecology, its methods and applications in subjects such as Conservation Biology, Environmental Cartography Analysis, Microbial Ecology, Assessment of Species and Ecosystems, and Vegetation Analysis, third year; and the elective course Forest Ecology, fourth year.

The main objective of the subject is to provide basic training for the study of the structure and functioning of natural systems at three basic levels of organization:

Populations: training the student in the concept of population and its meanings and introducing it in the techniques of sampling the abundance of organisms, and monitoring and modelling the dynamics of populations.

Communities: teaching the student to evaluate the structure of the communities, the functional relationships

between species (interspecific competition, depredation, symbiosis) and their manifestations at community level (trophic networks); analyse its dynamics in time (succession and disturbances) from the different points of view of historical and current ecology.

Ecosystems: introducing the student in the exchanges of matter and energy in trophic networks, as a preliminary step to the study of the biogeochemical cycles that will be carried out in the subject of Biosphere Sciences.

Learning outcomes

- CM14 (Propose actions to change methods and processes in the field of ecology in response to the planet's environmental needs and ensure the sustainability of contemporary activities.) Propose actions to change methods and processes in the field of ecology in response to the planet's environmental needs and ensure the sustainability of contemporary activities.
- KM17 (Define the concepts of population, communities, food webs, biogeochemical cycles and planetary balances in the field of ecology.) Define the concepts of population, communities, food webs, biogeochemical cycles and planetary balances in the field of ecology.
- KM18 (Describe the different pollutants of the natural environment and their bioindicators, climate change and the response of ecosystems to environmental changes.) Describe the different pollutants of the natural environment and their bioindicators, climate change and the response of ecosystems to environmental changes.
- SM16 (Analyse the processes that determine the functions of the biosphere on an ecosystem and global scale, with particular emphasis on the mutual interactions between biota and geophysical components, and on the alterations caused by human activity.) Analyse the processes that determine the functions of the biosphere on an ecosystem and global scale, with particular emphasis on the mutual interactions between biota and geophysical components, and on the alterations caused by human activity.
- SM17 (Analyse the dynamics of populations and communities in natural ecosystems, establishing relationships between them, with other organisms and with the environment.) Analyse the dynamics of populations and communities in natural ecosystems, establishing relationships between them, with other organisms and with the environment.

Contents

Part I. Organisms and populations

1. Introduction to Ecology

2. Ecology and evolution

3. Response of organisms to environmental factors

4. Populations: basic concepts

5. Parameters and demographic processes. Basic population models

6. Demography of structured populations

Part II. Communities and ecosystems

7. Organisation of communities - Diversity and richness

8. Interactions between species

9. Interchange of matter and energy

10. Trophic networks

11. Global change

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Study	45	1.8	CM14, KM17, KM18, SM16, SM17
Realization of a poster of practices	16	0.64	CM14, KM17, KM18, SM16, SM17
Tutorials	16	0.64	CM14, KM17, KM18, SM16, SM17
Realization of problems and exercises (classroom practices)	10	0.4	CM14, KM17, KM18, SM16, SM17
Field practices	14	0.56	CM14, KM17, KM18, SM16, SM17
Deliveries	2	0.08	CM14, KM17, KM18, SM16, SM17
Classroom practices	5	0.2	CM14, KM17, KM18, SM16, SM17
Master classes	27	1.08	CM14, KM17, KM18, SM16, SM17
Computer practices	8	0.32	CM14, KM17, KM18, SM16, SM17

The teaching methodology aims to achieve student training objectives that include both the acquisition of knowledge and training to continue studying (the so-called academic and professional skills). Various teaching-learning strategies will be combined so that the student has a particularly active role during the entire training process:

1) Master classes. The lectures or lectures represent the main activity to be done in the classroom and allow to transmit basic concepts to a large number of students in a relatively short time. They will be complemented with Power Point presentations and diverse didactic material that will be delivered to the students at the beginning of the course.

2) Classroom practices. They are work sessions by groups with a small number of students, based on questions or exercises delivered for their realization in class. They are proposed as a complement to the lectures and will be used preferably to develop the most numerical aspects of ecology, or to discuss practical cases.

3) Practice sessions. The practices allow to approach the complexity of the concepts, patterns and processes that characterize living systems through autonomous and group learning methodologies. Far from being simply an illustration of theoretical concepts, the model of practical classes aims to be self-explanatory and cover various aspects of a specific topic in two sessions held in small groups. In each one of them a field session will be carried out in which the student will get in touch with a case study and state the objectives and sampling methodology. This session will be combined with a session in the computer room dedicated to the treatment of the collected data and its discussion.

4) Delivery of works. The course incorporates a Moodle platform and virtual evaluation systems that students will use for the delivery of various papers and to answer questions during the course, which will allow them to become familiar with the e-learning platforms that will be very frequent in the university and the society of the future. The work delivered may be subject to group correction in the tutorials, which will also serve to resolve the particular doubts of the students. Eventually, the Moodle platform will also offer students forums and other internal communication tools such as chats because, either among themselves and / or with the teacher, they can discuss certain aspects of the subject they want to share or discuss with other classmates. class.

5) Tutorials. The aim of the tutorials is to solve doubts, review basic concepts not explained in class, and provide guidance on the sources consulted by students. They will be done at the individual level in the teachers' office, at agreed times. Eventually, collective tutoring can be scheduled in the classroom, after agreement with the class delegates.

In this course, the use of Artificial Intelligence (AI) technologies is permitted as an integral part of the work's development, provided that the final result reflects a significant contribution from the student regarding analysis and personal reflection. Students must clearly identify which parts were generated using this technology, specify the tools employed, and include a critical reflection on how these influenced the process and the final outcome of the activity. A lack of transparency regarding the use of AI will be considered a breach of academic integrity and may result in a grade penalty for the activity or more severe sanctions in serious cases.

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
Presentation of a poster (practises)	30%	2	0.08	CM14, KM17, SM16, SM17
Delivery of exercises	20%	1	0.04	CM14, KM17, SM17
Exams	50%	4	0.16	KM17, KM18, SM16, SM17

Evaluation

The evaluation will be made based on the following activities:

The exams (50% of the qualification). There will be two partial exams in which there may be three types of questions:

Short answer questions aimed at assessing whether the key conceptual objectives have been reached,

although in some cases there may be some more aimed at objective attitudinal or methodological values.

Problems or exercises with numerical calculation, designed to evaluate the achievement of methodological objectives.

Questions that involve a complex answer with the development of a topic or the presentation of a hypothesis. The space to respond is limited to one page per question. We want to assess if the student is able to explain and relate complex processes or concepts.

The presentation of a poster of the practices (30% of the qualification). The practices of the subject of Ecology are obligatory and consist of field and computer sessions. They will be evaluated by groups through a formative methodology, which will allow the student an additional learning. Students must present a poster in groups of 4-5 people, which will be subject to an evaluation that will include (1) an initial correction of the posters presented, (2) a tutorial with the working group to identify the main errors of the work and discuss the eventual improvement, and (3) the presentation and correction of a final version of the work. The first version counts 50% of the work qualification, and the final correction contributes the remaining qualification. One third of this qualification will come from the evaluation of the rest of the groups, which will be done in a specific session, and the remaining two thirds of the teacher's evaluation. The contents worked on in the second practice will be evaluated in the exam.

The delivery of exercises and questions in the classroom (20% of the qualification). There will be between 5 and 10 deliveries throughout the course.

Recovery

At the end of the course there will be a recovery exam. According to current regulations of the UAB, to participate in the recovery, the student must have been previously evaluated in a set of activities whose weight equals a minimum of two thirds (67%) of the total qualification of the subject.

The exams have a special weight in the evaluation since it is the only individual assessment activity controlled by the teacher. Therefore it is considered that the student must take a qualification higher than 3.5 in each of the partial exams to make average with the other learning activities and pass the subject without going to the recovery exam. If a student does not pass any of the partial exams, he/she must take the recovery exam for the WHOLE subject. Approved students can also take this recovery exam to raise their grade. It is understood that if the student is submitted to the recovery exam, he/she resigns to the notes of the partial exams.

Definition of "Approved": A student with an average qualification equal to or greater than 5 will be considered approved.

Definition of "Not Evaluable": The student will obtain the "Not Evaluable" qualification when the evaluation activities carried out have a weight lower than 67% in the final qualification. On the other hand, attendance at practical sessions is considered mandatory. Consequently, the student will also obtain the "Not Evaluable" qualification when the unjustified absence is greater than 20% of the scheduled sessions

Single evaluation

The students who take advantage of the single evaluation must carry out the field practices and the evaluation and weight on the final score of these will be the same as those of the continuous evaluation. The single assessment consists of a single synthesis exam on the contents of the entire theory programme. The grade obtained in the synthesis exam is 70% of the final score for the subject. The single assessment test will be done coinciding with the same date set in the calendar for the last continuous assessment exam and the same recovery system will be applied as for the continuous assessment.

Irregularities in assessment activities

Any irregularity committed during an assessment activity (such as academic fraud, plagiarism, or the improper use of AI-unless such use is expressly authorized in the course syllabus) that could lead to a significant change in the grade will result in that activity being graded as a 0. If the course syllabus stipulates that passing

the subject requires a minimum grade in that specific assessment activity, or if multiple irregularities occur across assessment activities for the same subject, the final grade for the subject will be 0. Furthermore, disciplinary proceedings may be initiated against any student who commits such irregularities.

Bibliography

Books

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Townsend C.R., Harper J.L., Begon M. (2003) *Essentials of Ecology* (2^a Ed.). Blackwell Science, Oxford

Web pages

<http://www.ecologiaconnumeros.uab.es/>

Software

R program

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	21	Catalan	second semester	afternoon
(PAUL) Classroom practices	211	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	211	Catalan	second semester	morning-mixed
(PCAM) Field practices	211	Catalan	second semester	morning-mixed
(PAUL) Classroom	212	Catalan	second	morning-mixed

practices			semester	
(PLAB) Practical laboratories	212	Catalan	second semester	morning-mixed
(PCAM) Field practices	212	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	213	Catalan	second semester	morning-mixed
(PCAM) Field practices	213	Catalan	second semester	morning-mixed