Ecology

Code: 101954
ECTS Credits: 6

2025/2026

Degree	Type	Year
Genetics	FB	2

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Teaching groups languages

You can view this information at the end of this document.

Prerequisites

- There are no official prerequisites but it is convenient that the student has taken the optional subjects of Biology and Earth Sciences and the Environment in secondary school.
- It is also recommended that the student has achieved a minimum basic knowledge about Zoology, Botany, Mathematics and Statistics.

Objectives and Contextualisation

The course presents the theoretical basis of ecology as a science that studies the structure, organization and functioning of natural systems. The contents of the course include the historical development of ecology as a science, its evolutionary framework, the relationship between organisms and the physical environment, the structure and dynamics of populations and communities, and the transfer of matter and energy in ecosystems.

The theoretical basis of the subject will be complemented by examples from the natural world that serve to illustrate the ecological concepts and the scientific debates they generate. These examples will also be used to relate ecological processes to current environmental problems, such as the effects of anthropogenic activity on biodiversity, changes in species distribution, or the interaction between global change and the biosphere.

The main objective of the course for students of the Degree in Genetics is to understand how genetic differences between organisms and the transmission of genetic information take place within the framework of a biological context that includes processes that operate at the level of individual, population and community.

Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Apply scientific method to problem solving.
- Be able to analyse and synthesise.
- Be sensitive to environmental, health and social matters.
- Describe the diversity of living beings and interpret it evolutionally.
- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Recognise and structurally and functionally describe the different levels of biological organisation, from macromolecules to ecosystems.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.
- Use and manage bibliographic information or computer or Internet resources in the field of study, in one's own languages and in English.

Learning Outcomes

1. Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
2. Apply scientific method to problem solving.
3. Be able to analyse and synthesise.
4. Be sensitive to environmental, health and social matters.
5. Explain how the different levels of biological organisation integrate in ecosystems.
6. Interpret the biological cycles of animal groups.
7. Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
8. Recognise the complexity of the global dynamics of natural systems on their different scales of analysis.
9. Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
10. Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.
11. Use and manage bibliographic information or computer or Internet resources in the field of study, in one's own languages and in English.

Content

Theoretical contents, unless the requirements enforced by the health authorities demand a prioritization or reduction of these contents.

1. Introduction to Ecology
2. Ecology and evolution
3. Response of organisms to environmental factors
4. Population structure and dynamics
5. Interactions between species
6. Composition and structure of communities
7. Dynamics of communities - Succession and Disturbance
8. Trophic networks and trophic levels
9. Functioning of ecosystems
10. Global change

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Master classes	29	1.16	1, 10, 9, 4, 5, 7, 8, 3
Seminars / classroom practices	15	0.6	2, 3, 11
Type: Autonomous			
Study	73	2.92	
Text reading	26	1.04	3, 11

Various teaching-learning strategies will be combined so that the student has a particularly active role during the entire training process:

1) Magister classes. The 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 materials that will be delivered to the students mainly at the beginning of the course.

2) Seminars / 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. In these sessions we will work around case studies. In this methodology, the teacher has a leading role, through questions that encourage reflection and debate among students, without transmitting all the information about the topic to be discussed.

3) Delivery of works and correction of seminars and classroom practices. The works delivered will be the subject of presentation, orientation, monitoring and correction in group, and these tutorials will also serve to solve the particular doubts of the students.

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

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Individual evaluation on the understanding and synthesis of directed readings and case studies	50%, the weight of specific activities is variable depending on the complexity of the suggested learning task	1	0.04	1, 10, 9, 2, 7, 8, 3, 11
Theory exams: 2 partial exams	50%: divided equally between both partial exams	6	0.24	2, 4, 5, 6, 8, 3, 11

Two evaluation modules are established:

1. Theory exams: 50% of the overall score, distributed in two partial exams.
2. Seminar activities (discussion of readings, exercises): final evaluation exam, 50% of the overall score.

Given the weight in the individual evaluation of the theory exams, a minimum global theory grade of 3.5 / 10 will be required to pass the subject, independently of the marks obtained in the two evaluation criteria.

The theory module can be re-evaluated with a specific recovery exam at the end of the course. This recovery exam will include the whole theory agenda, not segregated by partial exams. The qualification obtained in the recovery exam cancels the qualifications of the partial ones.

Students who wish to do so can also participate in the recovery exam at the end of the course to improve their qualification. The conditions are the same as for students who recover suspended qualifications.

To participate in the recovery exam, students must have been previously evaluated in a set of activities, the weight of which equals a minimum of two thirds of the total qualification of the subject or module. Therefore, the students will obtain the "Not Valuable" qualification when the evaluation activities carried out have a weight lower than 67% in the final grade.

A student will obtain the grade of "Not Evaluable" when the evaluation of all the evaluation activities that he / she has carried out does not allow to reach the global grade of 5.0 in the case if he / she had obtained the maximum grade in all of them.

Single evaluation:

1. The two types of evaluation are maintained: theory exam and seminar
2. The theory evaluation will consist of a written exam on all the contents
3. The evaluation of seminar activities will consist of a final exam.

These evaluation activities will be carried out the same day of the last co

Bibliography

Begon M., Townsend, C.R. & Harper, J.L. (2006). Ecology: From Individuals to Ecosystems (4th Edition). Blackwell, Oxford

Ricklefs R.E. (2010). The Economy of Nature. W.H. Freman, New York

Piñol J. & Matrínez-Vilalta J. (2006). Ecología con Números. Lynx Edicions, Bellaterra. https://ddd.uab.cat/record/225887/

Begon, Howarth, R. W., & Townsend, C. R. (2014). Essentials of ecology (4rd ed.). Wiley, Hoboken, NJ.

Other recommended books:

Vandermeer J.H. & Goldberg D.E. (2013). Population Ecology: First Principles (2nd edition). Princeton University Press, Princeton, New Jersey

Ricklefs R.E. & Miller G.L. (2000). Ecology (4ª ed.) W.H. Freeman & Co., New York.

Krebs C.J. (2001). Ecology: The Experimental Analysis of Distribution and Abundance (5ª ed.). Benjamin-Cummings Publishers Co.

Pianka E.R. (2000). Evolutionary Ecology. 6th. ed. Addison Wesley Longman, San Francisco.

Software

R, R Studio

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this link. To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	621	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	622	Catalan	first semester	morning-mixed
(TE) Theory	62	Catalan	first semester	morning-mixed