

Degree programme	Type	Course
Environmental Biology	OB	3

Contact lecturer

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Group languages

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

Prerequisites

Although there are no specific prerequisites, it is advisable that students have passed the Zoology subjects.

Objectives

The student must acquire the theoretical-practical knowledge that allows him/her to know and understand the effect that the exploitations of animal resources and animal pests have on the environment.

The student who has taken this course must have the training to analyze farms of renewable animal resources, and diagnose and manage the potential impacts generated. Likewise, the student must be able to participate in teams that implement strategies and pest management programs to reduce or suppress their populations, diagnosing the impact of these strategies on the human being and the environment.

The specific training objectives are:

- To understand the importance of the renewable resources that are exploited and its reality, as well as to assess the environmental impact of its exploitation, and to know the tools for its sustainable management.
- To know the problems of the cultivation and exploitation of certain animal resources and the importance of optimizing the conditions of growth, nutrition, reproduction and productive performance (with a special emphasis on aquaculture) for sustainable production and respectful of the environment.
- To know the ecological and biological bases of the origin of animal pests and their problems, as well as to have a current vision of the different strategies that are currently available for their control.
- To recognize the factors to consider designing a management strategy of a determined pest, with an environmental vision, that is respectful with humans and the environment.

Learning outcomes

1. Develop planning and organisation skills.
2. Communicate efficiently, orally and in writing.
3. Make decisions.
4. Focus on quality.
5. Identify the problems caused by pests and the production and exploitation of certain natural animal resources (fishing and hunting).
6. Diagnose and solve environmental problems related to animal resources (fishing and hunting) and pests.
7. Establish strategies for pest management.
8. Introduce changes in the methods and processes of the field of knowledge to provide innovative responses to the needs and demands of society.
9. Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
10. Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
11. Actuar en l'àmbit de coneixement propi avaluant les desigualtats per raó de sexe/gènere.

Contents

THEORETICAL PROGRAM:

BLOCK I: Exploitation of Animal Resources

Unit 1: Fishery resources and fishing intensity: definition, fishing gear, and resource depletion.

Unit 2: Fisheries management: fisheries regulation, technical and surveillance measures, monitoring, and evaluation.

Unit 3: Coastal fishing in the Mediterranean, fishing within the framework of the European Union and international context.

Unit 4: Introduction to aquaculture. Main systems of production and types.

Unit 5: An option for fishing? Research lines: feeding, reproduction, and environmental impacts.

Unit 6: Sustainable aquaculture.

Unit 7: Hunting: exploitation of a natural resource? Game species, production, and activity.

Unit 8: Management of terrestrial animal resources: extensive livestock and beekeeping.

- Seminar 1: Case study: fisheries co-management.

- Seminar 2: Technical report

- Seminar 3: Case study: situation and problematics of hunting in Catalonia.

BLOCK II: Management of Animal Pests

Unit 9: Integrated Pest Management: definition and context.

Unit 10: Action protocols in control programs: inspection, planning of actions, and follow-ups.

Unit 11: Ecological bases of pest dynamics.

Unit 12: Preventive and curative strategies; mechanical and physical methods.

Unit 13: Definition of pesticides, types, and limitations. Pesticides of natural origin, inorganic, synthetic organic, and biorational.

Unit 14: Biological and biotechnological control strategies: types and characteristics.

Unit 15: Application techniques and types of treatments with environmental-use pesticides.

Unit 16: Cases of integrated integrated and conservation strategies.

- Seminar 4: Pest monitoring and detection systems.
- Seminar 5: Labelling of pesticides and use of official registers.
- Seminars 6-8: Oral presentation of the practical pest case studies.

PRACTICAL PROGRAM:

BLOCK I:

- Laboratory practice: Evaluation of a fish population of fishery interest and management measures (3 h). Students will develop a study of a fish population (*Micromesistius poutassou* or a similar species of fishery interest), in order to assess the level of fishing pressure and discuss appropriate management measures.
- Field practice: Visit to a research center in aquatic resource management, common field practice with the subject Case Study of Environmental Biology (4 h).

BLOCK II:

- Field practice: Study of practical pest cases (9 h). Students will develop a case study related to one of the pests proposed by the teacher, such as tiger mosquito, subterranean termite, cockroaches, rodents, Asian hornet, library pests, food industry pests, or gardening pests.
- Laboratory practice: Practical use of biological control products, and identification of the materials related to the pest case study (5 h).

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Laboratory work	8	0.32	1, 2, 3, 4, 5, 6, 7, 8, 9
Studing and solving problems	32	1.28	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Field work	13	0.52	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
Prepare individual work and solving questions	51	2.04	1, 2, 3, 4, 5, 6, 7
Tutorials	6	0.24	1, 2, 4, 5, 6, 7
Lectures	24	0.96	4, 5, 6, 7
Seminars	8	0.32	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

The methodology used in this subject to achieve the learning process is based on encouraging students to actively work with the information made available to them. The role of the instructor is to provide the necessary information or indicate where to find it and to support students so that the learning process can be carried out effectively. Within the framework of the course, Service Learning (SL) may be developed, through which students are trained by participating in a project aimed at addressing a real need within a community, thereby improving people's living conditions or the quality of the environment.

To achieve this objective, the course is based on the following activities:

Lectures:

Through these theoretical sessions, students acquire the basic scientific and technical knowledge of the course, which they are expected to complement with personal study of the explained topics.

Seminars:

Seminars focus on deepening and consolidating the scientific and technical knowledge presented in the lectures. Seminars are characterized by active student participation, developing various analytical activities related to animal resources and pest management, including the resolution and presentation of practical case studies. The aim of the seminars is to promote analytical and synthesis skills, critical thinking, and problem-solving abilities.

Laboratory and Field Practices:

The objective of the practical sessions is to complete and reinforce the knowledge acquired in lectures and seminars. During these sessions, students will develop empirical skills such as observation, analysis, and the ability to identify issues related to the management of animal resources and pests.

In the management of animal resource practices, students will study a fish population under exploitation. The final product of the practice will be a technical report, following the standards of a professional report in the field of environmental biology, including study results and proposed management measures. To complement this block, students will visit a research center specializing in aquatic resources.

In the pest management practices, students will conduct a case study of a specific pest. In field sessions (on or off-campus), students must identify and recognize one of the proposed pests, carry out an inspection to locate individuals and/or collect evidence, establish mechanisms to assess population density, analyze the origin of the pest, evaluate its impacts (damage caused), and design an integrated management strategy. Laboratory sessions will serve for the identification and diagnosis of the collected material. These practicals have a professionalizing focus, as students will work directly with real-life cases, alongside companies and professionals in the pest control sector.

Tutorials:

The purpose of these sessions is to resolve doubts, review key concepts, and provide guidance on the sources

consulted by the students. These tutorials also help guide students in the development of their case study projects. The tutorial schedule will be arranged with the teacher.

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
Practices assessment	50%	3	0.12	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
Seminars and activities assessment	5%	1.5	0.06	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
First exam	15%	1.5	0.06	1, 2, 3, 4, 5, 6
Second exam	30%	2	0.08	1, 2, 3, 4, 5, 6, 7

CONTINUOUS ASSESSMENT

The assessment of this course takes place throughout the academic term, and no single activity accounts for more than 50% of the final grade.

ATTENTION: Attendance at practices and seminars is mandatory. Failure to attend practices and seminars without justification will imply that students can NOT pass the subject.

1. Evaluation of exams:

This item evaluates, on an individual basis, the knowledge acquired by the student in the course, as well as their analytical, synthetic, and critical thinking skills. The exams will consist of a multiple-choice section and another section with conceptual questions, diagrams, etc. There will be two eliminatory midterm exams: the first (Animal Resource Management) will account for 15% of the final grade, and the second (Pest Management) for 30%.

The minimum grade for each exam must be greater than or equal to 5.0, for the two midterm theoretical exams to average.

Final exam: Students who do not pass one of the two midterm exams will have the opportunity to retake the failed exam during the final exam. Students who wish to improve their score on either partial exam may also retake it in the final exam, but the previously earned grade will be forfeited. To calculate the average with the rest of the course assessments, it is necessary to obtain a minimum grade of 4.0 in each final exam.

2. Seminar and activities assessment:

This includes individual and group assignments completed during seminar sessions or through the virtual campus. Attendance at seminars is mandatory. This activity is not recoverable. The seminar grade contributes 5% to the final grade.

3. Practices assessment:

- Management of animal resources: Students, working in pairs, will produce a technical report demonstrating the knowledge acquired in the fisheries management block (theory, practices, and seminars). The report will be assessed according to pre-established rubric criteria. This evaluation of the report preparation accounts for 20% of the final grade and is not recoverable due to its practical nature.

- Pest management: Students will prepare a technical report on a specific case study and defend it orally during a seminar session. The report will include field and laboratory components integrating theoretical concepts. Both the written report and oral presentation will be assessed. This evaluation of the report preparation represents 30% of the final grade and is not recoverable.

To calculate the average with the rest of the course assessments, it is necessary to obtain a minimum grade of 4.0 in each practical report. Attendance at practical sessions is mandatory. Students will receive a "Not Assessable" grade if their absences exceed 20% of the scheduled sessions.

4. Final considerations:

- The minimum overall grade required to pass the course is 5 out of 10.
- Student observation guide during practicals (an added or reduced value of 0.5 to the final grade): given the practical nature of the course, an ideal environment is created to develop the transversal competencies mentioned previously. During various activities (field trips, external visits, seminars, debates, etc.), the teacher will observe whether students are acquiring the necessary aptitudes, attitudes, and skills. A negative adjustment may be applied if the student displays a passive attitude or negatively affects the course environment.
- To be eligible for the retake exam, students must have been assessed in a set of activities accounting for at least two-thirds (67%) of the final grade. Therefore, students will receive a "Not Assessable" grade if their completed assessments represent less than 67% of the total.
- Restricted use of AI: For this subject, the use of Artificial Intelligence (AI) technologies is allowed exclusively in the support tasks in the use of R, and the bibliographic search in the preparation of technical reports. The student will have to clearly identify which parts have been generated with this technology, specify the tools used and include a critical reflection on how they have influenced the process and the final result of the activity. The non-transparency of the use of AI in this assessable activity will be considered a lack of academic honesty and may lead to a partial or total penalty in the grade of the activity, or greater sanctions in cases of severity.
- Students who are unable to attend an individual assessment for a justified reason and provide official documentation will be entitled to take the exam on an alternative date.

SINGLE ASSESSMENT

The single assessment consists of one synthesis exam covering all theoretical course content, accounting for 45% of the final grade. This exam will be held on the same date scheduled for the last continuous assessment exam, and the same retake rules will apply.

Students opting for the single assessment must attend and pass the practical field and laboratory sessions in person. Seminar sessions are also mandatory. The assessment of these components (PLAB, PCAM, SEM, and VTEX) will follow the same procedure as in continuous assessment.

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Web sites:

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<http://www.gencat.cat/salut/ctrlplagues/Du13/html/ca/Du13/index.html>

International Organisation for Biological Control: <http://www.iobc-wprs.org/index.html>

<https://ec.europa.eu/fisheries/cfp/> Política pesquera comuna. Unió Europea.

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Software

R software

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	23	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	231	Catalan	second semester	morning-mixed

(PLAB) Practical laboratories	231	Catalan	second semester	afternoon
(PCAM) Field practices	231	Catalan	second semester	morning-mixed
(PCAMs) Suport a les pràctiques de camp dirigides	231	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	232	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	232	Catalan	second semester	afternoon
(PCAM) Field practices	232	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	233	Catalan	second semester	afternoon
(PCAM) Field practices	233	Catalan	second semester	morning-mixed