

Degree	Type	Year
Environmental Biology	OB	3

Contact

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Teachers

Anna Soler Membrives

Teaching groups languages

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

Prerequisites

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

Objectives and Contextualisation

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.

Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Communicate efficiently, orally and in writing.
- Develop and apply biological control techniques.
- Develop planning and organisation skills.
- Focus on quality.
- Introduce changes in the methods and processes of the field of knowledge to provide innovative responses to the needs and demands of society.
- Make decisions.
- Perform studies on animal and plant production and improvement.
- 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.

Learning Outcomes

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

Content

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.

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

- Seminar 2: Case study: situation and problematics of hunting in Catalonia.

BLOCK II: Management of Animal Pests

Unit 8: Concept of pest: biological, ecological, and anthropic perspectives.

Unit 9: Ecological bases that determine pests and pest typologies in urban, agricultural, and forest environments.

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

Unit 11: Preventive and curative strategies; mechanical and physical methods.

Unit 12: Definition of pesticides, types, and limitations. Pesticides of natural origin, inorganic, synthetic organic, and biorational.

Unit 13: Biological and biotechnological control strategies: types and characteristics.

Unit 14: Application techniques and types of treatments with environmental-use pesticides.

Unit 15: Integrated pest management: integrated and conservation strategies.

- Seminar 3: Case study: pest monitoring and detection systems.

- Seminars 4-7: 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 (4 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 (4 h).

BLOCK II:

- Field practice: Study of practical pest cases (12 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: Identification of the materials related to the pest case study (2h).

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
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Type: Directed

Field work	16	0.64	1, 2, 11, 3, 4, 5, 6, 7, 8, 9, 10
Laboratory work	6	0.24	11, 3, 4, 5, 6, 7, 8, 9, 10
Lectures	24	0.96	5, 6, 7, 8
Seminars	7	0.28	1, 2, 11, 3, 4, 5, 6, 7, 8, 9, 10
Type: Supervised			
Tutorials	6	0.24	3, 4, 5, 6, 7, 8
Type: Autonomous			
Prepare individual work and solving questions	51	2.04	3, 4, 5, 6, 7, 8, 10
Studing and solving problems	32	1.28	1, 11, 3, 4, 5, 6, 7, 8, 9, 10

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

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.

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%.

Final exam: Students who do not pass one of the two midterm exams (minimum grade: 5 out of 10) 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, a minimum final exam grade of 4 is required.

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 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 represents 30% of the final grade and is not recoverable.

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.

Attendance at practical sessions is mandatory. Students will receive a "Not Assessable" grade if their absences exceed 20% of the scheduled sessions.

Final considerations:

The minimum overall grade required to pass the course is 5 out of 10.

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.

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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Hajek, A. 2007.- Natural enemies: An introduction to Biological Control. Cambridge University Press. London. 378 pp.

Jacas, J.; Caballero, P. i Avilla, J. (eds). 2005.- El control biológico de plagas y enfermedades : la sostenibilidad de la agricultura mediterránea. Castelló de la Plana Publicacions de la Universitat Jaume I. 223 pp.

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Stickney, R. R. i McVey, J. P. (eds). 2002. Responsible marine aquaculture. England, CABI, 391 pp.

Vincent, C., M. Goettel and G. Lazarovits. (eds) 2007. Biological control, a global perspective. England, CABI, 440 pp.

Web sites:

Control Integrat de Plagues Urbanes. Generalitat de Catalunya:

<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

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	231	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	232	Catalan	second semester	morning-mixed
(PCAM) Field practices	231	Catalan/Spanish	second semester	afternoon
(PCAM) Field practices	232	Catalan/Spanish	second semester	afternoon
(PCAM) Field practices	233	Catalan/Spanish	second semester	afternoon

(PLAB) Practical laboratories	231	Catalan/Spanish	second semester	afternoon
(PLAB) Practical laboratories	232	Catalan/Spanish	second semester	afternoon
(PLAB) Practical laboratories	233	Catalan/Spanish	second semester	afternoon
(TE) Theory	23	Catalan	second semester	morning-mixed