COURSE DATA

DATA SUBJECT

Code: 33111
Name: Exploitation and control of natural populations
Cycle: Undergraduate Studies
ECTS Credits: 4.5
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1104 - Degree in Environmental Sciences	Facultat de Ciències Biològiques	4	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1104 - Degree in Environmental Sciences	Exploitation and control of natural populations	ELECTIVES

COORDINATION

ORTELLS BAÑERES RAQUEL PILAR

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SUMMARY

The course "Exploitation and Control of Natural Populations" is a four-month optional subject taught in the fourth year of the Environmental Sciences degree at the University of Valencia, within the Module XI "Optional Subjects", in the Thematic Block of Evaluation and Management of the Natural Environment. The subject, of 4.5 ECTS credits, will deal in an integrated way with all aspects of exploitation and control of natural populations, with special emphasis on the management of hunting, fishing and forest and pests, in accordance with the legislation and taking into account the socio-economic aspects of these activities.

The contents of the subject are structured in 5 theoretical blocks, with a total of 20 topics, and the corresponding practicals, in another block. In the first block, the general context of the study of natural populations will be established, all based on the ecology of populations, presenting the different theoretical models and their general theoretical models and their general applications to the study of populations. The remaining four blocks will deal with aspects related to the exploitation of populations in relation to hunting, fishing, forestry and pest management, with each block going into more detail on specific aspects of each activity, in as much depth as possible due to time constraints.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

It is recommended that students be currently enrolled in, or have successfully completed, the subjects belonging to the Environmental Technology, Environmental Management and Quality, and Social, Economic and Legal Sciences modules, and that they have successfully completed at least 120 ECTS credits.

COMPETENCES / LEARNING OUTCOMES

1104 - Degree in Environmental Sciences

Capacidad para elaborar planes de gestión de poblaciones de flora y fauna relativos a especies explotadas y plagas.

Conocer y saber aplicar modelos de explotación sostenible a recursos cinegéticos, pesqueros y forestales.

DESCRIPTION OF CONTENTS

1. 1. Population Ecology: Models of Sustainable Exploitation

Lesson 1. Natural Population Dynamics: General Concepts and Models

Lesson 2. Spatial Patterns and Metapopulations

Lesson 3. Predator-Predator-Predator Interactions

Lesson 4. Epidemiology: Pests and their Population Models

Lesson 5. Competition and Mutualism

2. Exploitation of hunting resources

Lesson 6. Population Monitoring of Hunting Resources

Lesson 7. Management and Conservation of Hunting Resources

Lesson 8. Social Context of Hunting Exploitation

Lesson 9. Technical Hunting Plans

3. Exploitation of fishery resources

Lesson 10. Fishery Resources Population Survey

Lesson 11. Management and Conservation of Fishery Resources

Lesson 12. Social Context of Fisheries Exploitation

Lesson 13. Technical Fishing Plans

4. Exploitation of forest resources

Lesson 14. Theoretical Models of Forest Harvesting

Lesson 15. Forest Management and Conservation

Lesson 16. Social Context of Forest Harvesting

5. Pest Control

Lesson 17. Pest Population Functioning Patterns

Lesson 18. Pest Management and Management

Lesson 19. Social Context and Economic Factors of Pests

6. Practicum

Practical 1 (Field; 1 session of 4 hours). Visit to a natural area, identification of game and fish species. Use of electric fishing.

Practical 2 (Computer room; 2 sessions of 2 hours). Population models.

Practice 3. (Computer room; 4 sessions of 2 hours). Technical Hunting Plan.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00
Theory	27,00
Laboratory	4,00
Computer classroom practice	12,00

Total hours	**45,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	15,00
Preparation of lessons	32,50
Preparation for assessment activities	20,00
Resolution of case studies	0,00
Total hours	**67,50**

TEACHING METHODOLOGY

ATTENDANCE AT THEORY CLASSES

The 20 topics included in the theoretical programme will be covered during theory classes. Each topic will be developed in a one-hour session consisting of presentations by the teaching staff, followed by questions and discussion.

These sessions will place particular emphasis on the interpretation of tables and figures, methodological aspects, and the discussion of general concepts illustrated through case studies. Attendance is compulsory and may be checked by the teaching staff on any day of the course.

ATTENDANCE AT SEMINARS

During the course, a total of four seminars will be delivered by specialists or professionals in different aspects related to the management of protected areas. Attendance is compulsory.

At the end of each seminar, students may be asked to submit a brief written summary of the topics covered in order to assess their understanding and participation.

PREPARATION OF THEORY CLASSES

This section includes the time students are expected to devote to the preparation of theory classes. Teaching materials (lecture slides and topic outlines) will be available on the Virtual Classroom at least one week before each class.

ATTENDANCE AT PRACTICAL CLASSES

The practical component of the course consists of field activities, coordinated with other subjects, and

computer laboratory sessions, amounting to a total of 12 contact hours. Together, these activities will cover all the topics included in the Practical Programme. Attendance is compulsory, and the teaching staff will take attendance during each session.

Upon completion of each practical session, students will submit the results obtained, which will be used for the assessment of the activity.

ATTENDANCE AT GROUP TUTORIALS

During the course, two one-hour group tutorial sessions will be held. These sessions will address different aspects of the course, including its organisation, the practical sessions, the assessment system and other relevant issues. Attendance is compulsory, and the teaching staff will take attendance.

EXAM PREPARATION

Independent study by students.

ASSESSMENT

Partial tests may be held during the course. A single final examination will be held at the end of the semester. The examination will include questions covering both the theoretical and practical components of the course, including the content presented in the seminars.

USE OF THE VIRTUAL CLASSROOM (http://aulavirtual.uv.es)

The Universitat de València's AULA VIRTUAL e-learning platform will be used for all course activities. The main tools available are:

- E-mail. Aula Virtual provides an internal messaging system that facilitates communication between students and the teaching staff. The teaching staff will use this system regularly to provide information related to the course.

IMPORTANT: Only messages sent from the Universitat de València institutional e-mail account (alumni.uv.es) will be accepted. Messages sent from external e-mail accounts (e.g. Hotmail) will be automatically deleted.

- News. The News section will be used as the main channel for course announcements. Students will see any new announcements immediately upon accessing the Virtual Classroom.

- Resources. The Resources section will contain all teaching materials, including reference documents, images, animations, tutorials, practical guides and the course calendar.

EVALUATION

The evaluation will consist of three sections, with the following distribution of points per section:

REFERENCES

- Begon, M. (1999). Ecología animal. Modelos de cuantificación de las poblaciones. Trillas. México, D.F.
- Vandermeer, J. H. y Goldberg, D. E. (2003). Population Ecology: First Principles. Princeton University Press, NJ.
- G. Caughley y A.R.E. Sinclair (1994). Wildlife ecology and management. Blackwell Science
- King, M. (1995). Fisheries Biology, Assessment and Management. Fishing News Books, Oxford
- Pretzsch, H. (2001) Modelling Forest Growth, Blackwell Verlag, Berlin
- Altieri, M.A. & C.I. Nicholls. 2004. Biodiversity and pest management in agroecosistems. The Haworth Press. 2nd. Edition.
- Barbosa, P. (ed.). 1998. Conservation biological control. Academic Press.
- Horn, D.J. 1988. Ecological approach to pest management. Elsevier Applied Science Publisher.
- USDA Forest Service. (1995) The Forest Service Program for Forest and Rangeland Resources: A Long-Term Strategic Plan, Washington: US Department of Agriculture, Forest Service.
- S. Jennings, M.J. Kaiser y J.D. Reynolds (2000). Marine fisheries ecology. Blackwell Science.
- Groom, M. J.; Meffe, G. K. y Carroll, C. R. (2006). Principles of Conservation Biology. 3ª ed. Sinauer, Sunderland, MA.
- Morrison y colaboradores (1992). Wildlife-habitat relationships. Winsconsin University Press

- B.Williams, J.D. Nichols y M.J. Conroy (2002). Analysis and management of animal populations. Academic Press.

- T.J. Quinn y R.B. Deriso (1999). Quantitative fish dynamics. Oxford University Press.

- D. García-Jalón y colaboradores. (1993). Principios y técnicas de gestión de la pesca en aguas continentales. Mundi-Prensa.