

**Conservation Biology**

Code: 100845  
ECTS Credits: 6

| Degree                        | Type | Year | Semester |
|-------------------------------|------|------|----------|
| 2500251 Environmental Biology | OB   | 2    | 2        |

**Contact**

Name: Llorenç Saez Goñalons  
Email: llorens.saez@uab.cat

**Use of Languages**

Principal working language: catalan (cat)  
Some groups entirely in English: No  
Some groups entirely in Catalan: Yes  
Some groups entirely in Spanish: No

**Teachers**

Mariona Ferrandiz Rovira

**Prerequisites**

There are no prerequisites

**Objectives and Contextualisation**

This subject is an introduction to the biology of conservation. Its general objective is to train students in the main concepts and methods applicable in the analysis and implementation of research or management initiatives in the field of biodiversity conservation. The specific objectives are the following:

- (1) Identify the main processes that threaten the conservation of species, populations and ecosystems
- (2) Acquire a scientific framework that integrates information from various scientific disciplines and allows the study of biological problems related to the conservation of biodiversity
- (3) Develop basic knowledge about the different strategies, from the population level to the ecosystem level, which aim to favor the conservation of biodiversity
- (4) Be critical and reflective about management where the field of biodiversity conservation

**Competences**

- Apply ICT resources pertaining to this field of study.
- Catalogue, assess and manage natural biological resources.
- Identify and interpret the diversity of species in the environment.
- Introduce changes in the methods and processes of the field of knowledge to provide innovative responses to the needs and demands of society.
- Manage information
- Manage, conserve and restore populations and 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.

## Learning Outcomes

1. Actuar en l'àmbit de coneixement propi avaluant les desigualtats per raó de sexe/gènere.
2. Apply ICT resources pertaining to this field of study.
3. Establish conservation plans and strategies for species and ecosystems.
4. Identify the species and habitats that are most susceptible to anthropic action.
5. Introduce changes in the methods and processes of the field of knowledge to provide innovative responses to the needs and demands of society.
6. Manage information
7. Recognise the principal processes involved in the loss of biodiversity.
8. Take account of social, economic and environmental impacts when operating within one's own area of knowledge.

## Content

### INTRODUCTION

1. Biodiversity and conservation. What is biodiversity? Genetic biodiversity, species, and ecosystems. Why keep biodiversity? The values of biodiversity. The biodiversity and the functioning of the ecosystems. Ecosystem services: the benefits that ecosystems provide us. Biology of conservation with a discipline. Three major axes of conservation: species, protected natural areas and ecosystems.

### LOCATION AND TRENDS OF BIODIVERSITY

2. Basic notions of biogeography. Concept of distribution area. Indigenous and allochthonous spaces. Endemic species. Scatter Changes in the distribution of species. Relationships between biogeography and evolution.

3. Distribution and trends of biodiversity in the world and in the Iberian peninsula. Ecoregions Hot areas of biodiversity (hotspots). Areas of endemism. The case of island environments. Global trends in biodiversity: the Live Planet Index.

4. Causes of loss of biodiversity (= threat factor). Immediate causes and causes. Loss of habitats. Fragmentation of habitats. Degradation of habitats. Overexploitation Invasive species Diseases Climate change. Interactions between these causes.

### CONSERVATION OF SPICES

5. Tools for the conservation of species. Preservation in situ and ex situ. Legislation on the protection of species. Recovery plans and conservation of experiences. Habitat management. Population reinforcements. Reintroductions and benign introductions.

6. Vulnerability of species to extinction. Global extinction and local extinctions. Historical guidelines of extinction. Spice riots: different aspects of rarity. Decline populations and small populations. Diagnosis of population declines. Demographic analysis of the populations. Identification of threatened species: IUCN categories.

7. Analysis of the viability of populations. Stochastic variation of the populations. Environmental, demographic and genetic stochasticities. How to make a stochastic model Analysis of the viability of populations (AVP). Relationships with the viable minimum population. Type of AVP. Limitations of AVPs.

### CONSERVATION OF NATURAL SPACES

8. Natural spaces: what should be preserved? Keep species or spaces? To conserve the ecological and evolutionary processes. Maintenance of the spatial and temporal variability of ecosystems. Mosaic of successional stages.

9. Protected Areas I: Basics. Definition Expansion of protected areas. Reasons for the declaration of protected areas. Types and objectives of protected areas. Legislation on protection of natural spaces. Who and how do you declare a protected area? Conserved areas and protected areas. Governance of protected areas.

10. Protected areas II: Goals, state and protected area systems. Aichi goals of the CBD. Worldwide protected state: Planet Planet Protected2014 and 2016. The system of protected areas in Catalonia. The Spatial Plan of Natural Interest of Catalonia (PEIN). The system of protected areas in Spain. Natura 2000 Network (European Union).

11. Evaluation of the effectiveness of protected areas. Context and justification. Key questions How do you know?: Applicable methodologies. Confusion factors Factors that influence the effectiveness of protected areas. Systemized methods of evaluating the effectiveness of management. How to improve the efficiency of protected areas.

12. Planning and management of protected areas. Social and economic implications of protected areas. Planning a protected area: the special plans of protection of physical and legal environment. Use multiple problems that are derived from me.

13. The conservation of protected rights. Need Role of sectoral policies. Role of regional planning. Custody of the territory.

## Methodology

The methodology used to achieve the learning process is based on making the student work the information that is available to him. The function of the teacher is to give him the information directly, or to indicate where he can get it, all guiding him so that the learning process can be carried out effectively. To achieve this goal, the subject is based on the following activities, through the combination of: theory classes, seminars, and practice sessions.

(1) lectures or theoreticla sessions (in a whole group) where the concepts and methods of the discipline are explained. In the theoretical sessions, the complicated and important points of each didactic unit are highlighted and addressed. Subsequently, the student, based on the conceptual map, can complement it with bibliographic information from their non-contact work. The theoretical sessions are of 50 minutes duration and will be made using audiovisual material prepared by the teacher and the student will have available in the Virtual Campus.

(2) classroom practices (in a split group) where concrete cases of study are analyzed and participatory debates are held on the significance and limitations of the concepts and methods explained in theory. These seminars allow us to deal with subjects that are usually of special interest (due to their controversy or actuality) but which are outside a general syllabus of the subject, since they refer to a very specific topic and would break the main theme of the syllabus.

(3) Practices. Field practices and computer practices will be carried out. In the first cases are practical cases of conservation of species and habitats in the field. Regarding the second type of practices, one learns the use of computer programs that allow to work, analyze and criticize some of the concepts and methods dealt with both in the theoretical sessions and in the seminars.

(4) Tutorials, where students are guided in aspects such as documentation, development and analysis of the work they must complete throughout the course.

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.

## Activities

| Title               | Hours | ECTS | Learning Outcomes |
|---------------------|-------|------|-------------------|
| Type: Directed      |       |      |                   |
| Assignments         | 28    | 1.12 | 2, 3, 6, 4, 7     |
| Field practices     | 10    | 0.4  | 3, 6, 4, 7        |
| Lectures            | 30    | 1.2  | 3, 4, 7           |
| Tutorial            | 6     | 0.24 |                   |
| classroom practices | 6     | 0.24 | 6, 4, 7           |
| computer classroom  | 6     | 0.24 | 2, 6, 4, 7        |
| Type: Autonomous    |       |      |                   |
| Study               | 60    | 2.4  | 2, 3, 6, 4, 7     |

## Assessment

The subject will be evaluated by means of two assignments carried out outside the contact hours and two partial exams, with the following weight in the final grade:

1. First assignment: 20%
2. Second assignment: 20%
3. First partial exam: 30%
4. Second partial exam: 30%

The first partial exam releases matter.

There will be an average score higher than 4 between the two partial exams so that you can make average with the grades obtained in the two course papers to pass the subject (ie a global minimum score of 5).

The qualification of "Not Evaluable" will be applied when the evaluation of all the evaluation activities carried out does not allow to reach the global grade of 5 in the event of having obtained the highest grade in all of them.

Students who can not attend an individual evaluation test for just cause (such as illness, death of a first degree relative or accident) and provide the corresponding official documentation to the Grade Coordinator, will be entitled to take the test in question. another date

Attendance at practical sessions is mandatory. The students will obtain the grade of "Not Evaluable" when the absence is superior to 20% of the programmed practices.

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

## Assessment Activities

| Title                            | Weighting | Hours | ECTS | Learning Outcomes      |
|----------------------------------|-----------|-------|------|------------------------|
| First mid-term assignment        | 20%       | 0     | 0    | 1, 8, 2, 3, 6, 4, 5, 7 |
| First mid-term theoretical exam  | 30%       | 2     | 0.08 | 3, 4, 7                |
| Second mid-term assignment       | 20%       | 0     | 0    | 1, 8, 2, 3, 6, 4, 5, 7 |
| Second mid-term theoretical exam | 30%       | 2     | 0.08 | 3, 4, 7                |

## Bibliography

### References:

Delibes de Castro M (2001) La naturaleza en peligro. Causas y consecuencias de la extinción de especies. Destino. (*Reimprès el 2005 i el 2008*).

Groom MJ, Meffe GK, Carroll CR i contribuïdors (2016) Principles of conservation biology. Quarta edició. Sinauer.

Kareiva P, Marvier M (2011) Conservation Science: Balancing the Needs of People and Nature. Roberts Publishers.

Primack RB (2014) Essentials of conservation biology. Sisena edició. Sinauer.

Sodhi NS, Ehrlich PR (eds) (2010) Conservation biology for all. Oxford University Press. Gratuït a: <http://s3.amazonaws.com/mongabay/conservation-biology-for-all/Conservation-Biology-for-All.pdf>

Van Dyke F (2008) Conservation biology. Foundations, concepts, applications. Segona edició. Springer.

### web resources:

Medi natural i biodiversitat, Generalitat de Catalunya: cercar amb algun buscador "Medi natural i biodiversitat, Generalitat de Catalunya"

Ministerio de Medio Ambiente, Govern d'Espanya: [www.magrama.gob.es/es/biodiversidad/temas/default.aspx](http://www.magrama.gob.es/es/biodiversidad/temas/default.aspx)

AEMA: Agència Europea del Medi Ambient (EEA; European Environment Agency) [www.eea.europa.eu](http://www.eea.europa.eu)

Medi Ambient, Comissió Europea: [http://ec.europa.eu/environment/index\\_en.htm](http://ec.europa.eu/environment/index_en.htm)

CBD: Conveni per a la Diversitat Biològica [www.cbd.int](http://www.cbd.int)

UICN (IUCN): Unió Internacional per la Conservació de la Natura <http://cms.iucn.org>

WCMC: World Conservation Monitoring Centre [www.unep-wcmc.org](http://www.unep-wcmc.org)

Greenfacts: [www.greenfacts.org/en/digests/index.htm](http://www.greenfacts.org/en/digests/index.htm)

WWF: World Wide Fund for Nature (World Wildlife Fund) [www.panda.org](http://www.panda.org)

Conservation International: [www.conservation.org](http://www.conservation.org)

Portal de la "Sociedad de Biología de Conservación de Plantas"  
<http://www.conservacionvegetal.org/sebicop.php>

Xarxa de Custòdia del Territori (XCT): <http://custodiaterritori.org/>

Protected Planet Report 2014: <https://www.unep-wcmc.org/resources-and-data/protected-planet-report-2014>

Protected Planet Report 2016: <https://www.unep-wcmc.org/resources-and-data/protected-planet-report-2016>

Estratègia del patrimoni natural i la biodiversitat de Catalunya:

[http://mediambient.gencat.cat/ca/05\\_ambits\\_dactuacio/patrimoni\\_natural/estrategia-catalana-del-patrimoni-natural](http://mediambient.gencat.cat/ca/05_ambits_dactuacio/patrimoni_natural/estrategia-catalana-del-patrimoni-natural)

## **Software**

In the classroom problem sessions and also in the practical sessions with computers, databases and free access (or licensed) programs will be used.