

**Forest Ecology**

Code: 100819  
ECTS Credits: 6

Degree	Type	Year	Semester
2500251 Environmental Biology	OT	4	0

**Contact**

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**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**

Raul Garcia Valdes  
Sandra Saura Mas  
Rafael Poyatos López

**Prerequisites**

Before enrolling into the Forest Ecology course it is desirable that students have attained the learning skills corresponding to the following courses of their degree: Mathematics, Biostatistics, Natural Environment Prospecting, Botany, Ecology and Vegetation Analysis.

**Objectives and Contextualisation**

The objective of this course is to produce the knowledge and methodological skills required for (1) learn the reality of forests, particularly in the Mediterranean region; (2) gain basic understanding on their functioning and dynamics; and (3) acquire notions on the main principles and tools used in forest management and logging practices. The course will be conducted respecting the diversity and plurality of ideas, people and situations. The student will need to use some of the mathematical and statistical tools acquired in previous courses of the degree.

**Competences**

- Develop analysis and synthesis skills.
- Identify and interpret the diversity of species in the environment.
- Identify and use bioindicators.
- Make decisions.
- Perform studies on animal and plant production and improvement.
- Solve problems.

**Learning Outcomes**

1. Develop analysis and synthesis skills.
2. Draw up plans for the sustainable management of woodland.
3. Make decisions.
4. Manage the different variables for describing a forest system and its degree of conservation.
5. Solve problems.
6. Use indices to determine the state of conservation of an ecosystem.

## **Content**

The syllabus consists of 13 topics, structured in four blocs:

### Bloc 1. What are forests and how do we study them?

1. From the tree to the forest.
2. The global importance of forests.
3. Describing a forest.

### Bloc 2. Forest functioning

4. ¿How do trees work?
5. Primary production and carbon stocks in forests.
6. Water and nutrient fluxes in forests.

### Bloc 3. Forest dynamics

7. Forests in time.
8. Disturbances and their effects.
9. Forests and global change.
10. Modelling forests.

### Bloc 4. Forest multifunctionality. Ecosystem services

11. Forest management and ecosystem services.
12. Logging and forestry.
13. Managing Mediterranean forests.

## **Methodology**

### Master classes

Theoretical classes consist of lectures. The student will have complementary materials that will facilitate following the class. This material will be previously available in the corresponding moodle classroom.

### Classroom practicals

Practical in the classroom in which we will carry out an activity related to the decision making in the management and exploitation of forests. We will work in groups and special emphasis will be placed on the

applied aspects corresponding to block 4.

### Computer practices

During these practical classes we will learn to use forest databases and models related to forest functioning and dynamics.

### Field practices

We will have a two-day visit to practice the materials and methods of forest inventories and studies. Starting from the question of a problem related to the recovery of forests and their management, we will carry out a practical study with real field data. There will be an additional short visit to work on the specific methodologies used to study forest function.

### Resolution of a case study

This activity consists in presenting a proposal of management of a forest area by the students, in groups of 3 or 4 people. Based on the knowledge obtained during the course, the groups will be able to analyze the forest, its potential uses and ecosystem services, and finally, have the capacity to develop a proposal for management. To guide the work there will be several sessions (in theory hours) where the teachers will supervise the process.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Computer practicals	5	0.2	1, 4, 3, 5
Field practicals (two day visit)	16	0.64	2, 4, 3
Field practicals (visit to Can Balasc)	3	0.12	4
Master classess	28	1.12	1, 2, 4, 6
Practicals in the classroom	3	0.12	1, 3, 5
Type: Supervised			
Study case (problem-based)	23	0.92	1, 2, 4, 3, 6
Type: Autonomous			
Personal work	62	2.48	1, 2, 4, 3, 5, 6

## Assessment

### Resolution of the case study

Written report (in groups) on the analysis part (15% of the final grade) and written and oral group presentation of the management proposal (20%).

## Theoretical contents

First partial individual exam (30% of the mark). Contents of blocks 1 and 2.

Individual second exam (30% of the mark). Contents of blocks 3 and 4.

Other activities: problem solving, summaries of other activities and participation (5%)

The final grade of the subject is calculated as the average weighted by the percentages indicated in the previous notes

If the average mark of the two partial exams does not reach 5, the mark of the partial exams will not be considered and it will be necessary to take an additional examination of the whole subject. This reevaluation exam will be worth 60% of the final grade, as long as its mark is at least 3.5; otherwise the subject will be considered failed. To participate in the reevaluation, the students must have been previously evaluated in a set of activities whose weight equals to a minimum of two thirds of the total grade of the subject. Therefore, the students will obtain the "Not Evaluable" qualification when the evaluation activities have a weighting of less than 67% in the final grade.

For the rest of assessment activities, there is no need to obtain a minimum mark.

It is also possible to take an additional exam to improve the mark of the theoretical part. This exam will be on the same date as the reevaluation one. In case the mark obtained is better than the average of the two partial exams, its mark will be considered and worth 60% of the final grade; otherwise its mark will be averaged with the mark of the partial exams, always guaranteeing that the subject will be passed (that is, in no case a student will be considered failed if he/she had passed the partial exams).

The non-delivery of any of the assessment activities within the established period implies a zero mark for that activity.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Case study - analysis	15	0	0	1, 4
Case study - management plan	20	4	0.16	1, 2, 3
Exam - first part	30	2	0.08	1, 4, 5, 6
Exam - reevaluation	(variable)	2	0.08	1, 4, 5, 6
Exam - second part	30	2	0.08	1, 4, 5, 6
Other activities	5	0	0	1, 5

## Bibliography

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