Universitat Autònoma de Barcelona

2021/2022

Forest Ecology

Code: 100819
ECTS Credits: 6

Degree	Type	Year	Semester
2500251 Environmental Biology	OT	4	0

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

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

Lidia Quevedo Dalmau

Prerequisites

Before enroling into the Forest Ecology course it is desirable that students have attained the learning skills corresponding to the folowing courses: Mathematics, Biostatistics, Natural Environment Prospecting, Botamy, Ecology and Vegetation Analysis.

Objectives and Contextualisation

The objective of this course is to prodice the knowledge and methodogical 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. The course will be conducted respecting the diversity and plurality of ideas, people and situations.

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 the following 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. Forets in time.

8. Disturbances and their effects.

9. Forests and global change.

10. Modelling forests.

Bloc 4. Forest multifuntionality. Ecosystem services

11. Forest management and ecosystem services.

12. Logging and forestry.

13. Managing Mediterranean forests.

*Unless the requirements enforced by the health authorities demand a prioritization or reduction of these contents.

Methodology

Master classes

They will combine theoretical lectures, invited seminars on specific topics, and follow-up classes for the ApS project (see below) or other tasks commissioned by the teaching staff. The students will have complementary material that will facilitate the follow-up of the classes, which will be previously available in the corresponding moodle classroom.
Computer practices

During these practical classes we will learn to use forest databases and methodological tools such as dendroecology (study of tree growth rings).

Service-learning project (ApS)

This activity consists of the presentation (by groups) of a management proposal for a forest area in Esparreguera (Baix Llobregat), in collaboration with the city council of this town. This forest area is located within a Special Conservation Zone of the Mediterranean region (MONTSERRAT-ROCAS BLANCAS-RIO LLOBREGAT, ES5110012) and borders the protected area of the Montserrat Mountain Natural Park. Based on the knowledge obtained during the course, the groups will be able to make a diagnosis of the study forest and its potential uses and ecosystem services, to end up making a specific management proposal. To guide the work there will be a series of sessions during master classes supervised by the teaching staff.
Field practices
We will make two field trips to see in situ and apply the tools and methodologies of inventories and forest ecology studies. One of the two trips will be to La Garrotxa and the other to Esparraguera, to study the forest of the ApS project.

Classroom practicals

Practical in the classroom in which we will carry out an activity related to 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 fourth block of the course.

*The proposed teaching methodology may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.

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			
Computer practicals	5	0.2	1, 4, 3, 5
Field practicals	16	0.64	2, 4, 3
Master classess	28	1.12	1, 2, 4, 6
Practicals in the classroom	3	0.12	1, 3, 5
Type: Supervised			
Service-learning project (ApS)	36	1.44	1, 2, 4, 3, 6
Type: Autonomous			
Personal work	50	2	1, 2, 4, 3, 5, 6

Assessment

Service-learning project (ApS)

Written work (by groups) of the analysis part (20% of the final grade) and group presentation (in writing and orally) of the management proposal (25%)

Theoretical contents

Oral self-assessment (individual) of the contents of the first part of the subject, supervised by the teaching staff (15% of the grade).
Written self-assessment (individual) of all the contents of the subject (30% of the mark).

Other activities
Problem solving and exercices, summaries of other activities and participation (10%)

The final grade of the course is calculated as the average weighted by the percentages indicated above
In case the average mark does not reach 5, it is necessary to go to a re-evaluation exam of the whole subject, which will replace the mark of the self-assessment and, therefore, it is worth 45% of the total grade. To participate in this re-evaluation, students must have been previously evaluated in a set of activities, the weight of which is equivalent to a minimum of two-thirds of the total grade for the subject. Therefore, the students will obtain the grade of "Not Evaluable" when the evaluation activities carried out weight less than 67% in the final grade.
Whoever wishes, can take an exam to improve the grade for the theoretical part. This exam will be carried out on the same day as the re-evaluation exam and will also be worth 45% of the final mark, replacing the mark from the self-assessment. Approval is always guaranteed (that is, in no case will the student be failed if he / she had initially passed).
Failure to deliver any of the evaluation activities within the established period implies a score of zero for that activity.
*Student's assessment may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exam - reevaluation	(variable)	2	0.08	1, 4, 5, 6
Other activities	10	0	0	1, 5
Self-assessment	45	6	0.24	1, 3
Service-learning project (ApS) - analysis	20	0	0	1, 4
Service-learning project (ApS) - management plan	25	4	0.16	1, 2, 3

Bibliography

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Piñol J, Martinez-Vilalta J. 2006. *Ecologia con números*. Lynx.

Terradas J. 2001. *Ecologia de la vegetación*. Omega.

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Waring RH, Running SW. 2007. *Forest Ecosystems: Analysis at Multiple Scales* (3rd Edition). Academic Press.

Young RA, Giese RL (eds.). 2002. *Introduction to Forest Ecosystem Science and Management* (3rd Edition) Wiley.

*Some of the previous texts are available electronically at the UAB library (https://ddd.uab.cat/record/22492)

Software

Catalan Forest Laboratory: http://laboratoriforestal.creaf.uab.cat/