

| Degree programme | Type | Course |
|------------------|------|--------|
| Biology          | OB   | 3      |

## Contact lecturer

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## Teaching staff

Ramon Perez Obiol

## Group languages

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

## Prerequisites

As the course places particular emphasis on the spatial distribution of vegetation, it is recommended that students have a background in biology and geography, particularly regarding Catalonia and the Iberian Peninsula. The knowledge and skills acquired in the Botany course will also be beneficial.

## Objectives

This course focuses on the study of plant biodiversity from a hierarchical perspective. It introduces the principles required to analyse supra-specific levels of biological organization, such as plant communities and biomes, while also providing an understanding of the relationships between organisms and their physical and biotic environments.

This course complements Botany, in which students study plant biodiversity, biology, and evolution at the species level, and provides an essential foundation for subsequent courses such as Biology and Diversity of Cryptogamic Plants, Biology and Diversity of Phanerogams, and Applied Botany.

The course is organised into three main blocks:

1. A synthetic description of the main vegetation types and biomes.
2. Analysis of the spatial and temporal patterns and dynamics of vegetation.
3. Study of cartographic techniques, including Geographic Information Systems (GIS) and Remote Sensing, for the spatial and temporal analysis and management of vegetation

## Learning outcomes

- CM12 (Evaluate temporal and spatial patterns and dynamics observed in vegetation, relating it to environmental factors and assessing the environmental impact of anthropogenic action.) Evaluate temporal and spatial patterns and dynamics observed in vegetation, relating it to environmental factors and assessing the environmental impact of anthropogenic action.
- CM13 (Act in accordance with the Sustainable Development Goals in the process of managing and conserving plant communities.) Act in accordance with the Sustainable Development Goals in the process of managing and conserving plant communities.
- KM21 (Identify plant and fungal species, applying current techniques of classification of living beings.) Identify plant and fungal species, applying current techniques of classification of living beings.
- SM16 (Apply cartographic techniques (Geographic Information Systems and Remote Sensing) that allow the analysis and management, spatially and temporally, of vegetation.) Apply cartographic techniques (Geographic Information Systems and Remote Sensing) that allow the analysis and management, spatially and temporally, of vegetation.
- SM18 (Carry out reports on the analysis of the vegetation of natural communities, presenting them in written and oral form.) Carry out reports on the analysis of the vegetation of natural communities, presenting them in written and oral form.

## Contents

### **Vegetation mapping**

- Basic concepts of cartography
- Consultation and creation of cartographic databases
- Geographic Information Systems (GIS)
- Remote Sensing
- Spatial analysis and cartographic modelling
- Methodological tools for territorial description

### **Analysis and description of vegetation**

- Basic concepts of vegetation biogeography
- Vegetation dynamics
- World vegetation and biomes
- Vegetation of Europe and the Mediterranean Basin
- Physical environment, biogeography and vegetation of the Iberian Peninsula
- Deciduous, coniferous and sclerophyllous forests
- Shrubland formations

### **Spatial and temporal patterns and dynamics**

- Landscape change indicators
- Climate dynamics
- History of vegetation
- Disturbances

## Learning activities and methodology

| Title                                  | Hours | ECTS | Learning outcomes            |
|----------------------------------------|-------|------|------------------------------|
| Self-study                             | 48    | 1.92 | CM12, CM13, KM21, SM16       |
| Field work                             | 12    | 0.48 | CM12, CM13, KM21, SM16, SM18 |
| Report preparation                     | 49.5  | 1.98 | CM12, CM13, SM16, SM18       |
| Lectures                               | 26    | 1.04 | CM12, CM13, KM21, SM16       |
| Computer laboratory practical sessions | 12    | 0.48 | CM12, SM16                   |

The teaching methodology is based on face-to-face theoretical and practical activities, including fieldwork and computer laboratory sessions.

Part of the course content will be delivered through in-person lectures, with particular emphasis on concepts that may be difficult to understand through self-directed learning alone. Students are expected to read the corresponding teaching units before each class so that the sessions can be developed through active interaction and discussion. Afterwards, students will complement the class outline with bibliographic resources and supporting graphical material (PowerPoint presentations) as part of their independent study.

This course has a strong practical component, which is considered an integral part of the theoretical knowledge of Botany. Practical activities are divided into computer laboratory sessions and fieldwork. During the computer laboratory sessions, students will be provided with practical guides containing exercises designed to familiarize them with Geographic Information Systems (GIS) and Remote Sensing as critical users. The fieldwork component consists of a field trip designed to examine a latitudinal and altitudinal gradient, allowing students to observe different vegetation types. Prior to the field trip, students will prepare a report describing the environmental and landscape characteristics of the sites to be visited. Students are therefore expected to play an active role during the field trip by presenting the main characteristics of each location, while the instructor will complement these explanations. Finally, students will prepare a synthesis of the natural areas visited during the field trip, integrating the cartographic analyses carried out throughout the course into a final synthesis report. This report will therefore reflect the combined application of the methodologies learned during both the GIS practical sessions and the fieldwork.

Note: In accordance with the faculty's academic calendar, 15 minutes of one class session will be reserved for students to complete the institutional surveys evaluating the teaching performance of the instructor and 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.

## Assessment

### Continuous assessment activities

| Title                      | Weight | Hours | ECTS | Learning outcomes            |
|----------------------------|--------|-------|------|------------------------------|
| First midterm examination  | 33.3   | 1     | 0.04 | CM12, CM13, SM16, SM18       |
| Report evaluation          | 33.3   | 0.5   | 0.02 | CM12, CM13, KM21, SM16, SM18 |
| Second midterm examination | 33.3   | 1     | 0.04 | CM12, CM13, SM16, SM18       |

## **Examinations**

The examinations will consist of multiple-choice tests. There will be two midterm examinations covering both the theoretical sessions and the practical activities. Students will be entitled to resit the midterm examinations at the end of the semester. During this final examination period, students may also choose to improve their previous marks by notifying the course coordinator in advance. In such cases, the highest mark obtained will be retained.

## **Report on the Analysis of a Natural Area**

Each group will present this report both orally (during the field trip) and in written form (after the field trip).

## **Exemption from Resitting Examinations**

Students who obtain a mark of 5.0 or higher in each of the two midterm examinations will not be required to take the corresponding resit examinations.

## **Final Grade**

Students will receive a final grade (weighted average; see the assessment activities section) provided that: the minimum mark in each of the two examinations (considering the highest mark obtained either in the midterm or the resit examination) is 5.0 or higher; and the minimum mark for the report is 5.0 or higher. If either requirement is not met, the student will fail the course unless they qualify as Not Assessed. Students will receive the grade Not Assessed if they do not receive a grade for one of the three assessment activities or if they are unjustifiably absent from the computer laboratory sessions or the field trip.

## **Attendance**

Attendance at the computer laboratory sessions and the field trip is compulsory. Unjustified absence will result in a penalty and may, at the instructor's discretion, lead to the student being classified as Not Assessed.

## **Use of Artificial Intelligence**

The use of Artificial Intelligence (AI) technologies is permitted exclusively for support tasks, such as literature and information searches, text proofreading, and translations. Failure to disclose the use of AI in assessed activities will be considered a breach of academic integrity and may result in a partial or total reduction of the activity grade, or more severe disciplinary measures in serious cases. Any irregularity committed during an assessment activity (academic misconduct, plagiarism, or improper use of AI, unless such use is expressly authorized in the course syllabus) that may lead to a significant alteration of the grade will result in that activity being graded as 0. If the course syllabus stipulates that obtaining a minimum mark in this assessment is an essential requirement to pass the course, or if multiple irregularities occur in the assessment activities of the same course, the final grade for the course will be 0. Furthermore, disciplinary proceedings may be initiated against any student who incurs any of these irregularities.

*The proposed assessment scheme may be modified should health authorities impose restrictions affecting face-to-face teaching.*

## Bibliography

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RIVAS-MARTÍNEZ, S. 1987. Memoria del mapa de series de vegetación de España (Texte i mapes). Public. ICONA. Madrid.

## Software

MiraMon 10

### Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

| Type of teaching              | Group | Language | Semester        | Shift         |
|-------------------------------|-------|----------|-----------------|---------------|
| (TE) Theory                   | 13    | Catalan  | second semester | morning-mixed |
| (PLAB) Practical laboratories | 131   | Catalan  | second semester | afternoon     |
| (PCAM) Field                  | 131   | Catalan  | second          | morning-mixed |

| practices                                         | semester |         |                 |               |
|---------------------------------------------------|----------|---------|-----------------|---------------|
| (PCAMs) Suport a les pràctiques de camp dirigides | 131      | Catalan | second semester | morning-mixed |
| (PLAB) Practical laboratories                     | 132      | Catalan | second semester | afternoon     |
| (PCAM) Field practices                            | 132      | Catalan | second semester | morning-mixed |
| (PCAMs) Suport a les pràctiques de camp dirigides | 132      | Catalan | second semester | morning-mixed |
| (PLAB) Practical laboratories                     | 133      | Catalan | second semester | afternoon     |
| (PCAM) Field practices                            | 133      | Catalan | second semester | morning-mixed |
| (PLAB) Practical laboratories                     | 134      | Catalan | second semester | afternoon     |
| (PCAM) Field practices                            | 134      | Catalan | second semester | morning-mixed |