

## Vegetation Analysis

Code: 100831  
 ECTS Credits: 6

Degree	Type	Year	Semester
2500251 Environmental Biology	OB	3	2

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

Ramon Pérez Obiol

Miquel Ninyerola Casals

### Prerequisites

Despite the lack of official prerequisites, before taking this course it is very convenient to have passed Natural Environment Projection, Botany, Ecology, Analysis of Environmental Mapping, Physical Environment and Biostatistics.

### Objectives and Contextualisation

The objective is to provide basic knowledge and methodological tools that allow students to recognizing the main vegetal formations of our geographical region, as well as interpreting the main processes that determine their structure and dynamics both locally and at regional level, and across different time scales.

### Competences

- Describe, analyse and assess the natural environment.
- Exercise leadership.
- Identify and interpret the diversity of species in the environment.
- Interpret and design the landscape.
- Manage information
- Obtain information, design experiments and interpret results.
- Sample, characterise and manipulate populations and communities.
- Take the initiative and demonstrate an entrepreneurial spirit.

### Learning Outcomes

1. Analyse the components of the natural environment and human influence on the configuration of the different landscapes.
2. Describe the components of the physical environment, identify the natural factors that determine the types of communities present and analyse the types of vegetation.
3. Exercise leadership.
4. Manage information
5. Obtain information, design experiments and interpret results.
6. Perform inventories of organisms, sample populations and identify communities.
7. Recognise in the field the principal plants, animals and organisms that are characteristic to the communities in our environment.
8. Take the initiative and demonstrate an entrepreneurial spirit.

## **Content**

Part I. Regional analysis of vegetation

1. Basic concepts of vegetation biogeography
2. Dynamics of vegetation
3. Characteristics of the physical environment and the vegetation in the Iberian Peninsula
4. The vegetation of the Mediterranean basin
5. The vegetation of Europe
6. The great Biomes
8. Indicators of the evolution of the landscape
9. Climate dynamics and history of vegetation

Part II. Patterns and local dynamics of vegetation

10. Biological typologies of plants
11. Plant functional traits and functional diversity
12. Species composition: quantitative methods of vegetation analysis
13. Spatial distribution of communities: analysis of gradients
14. Species pool, dispersion and establishment
15. Plant community assembly and species coexistence
16. Plant succession and disturbance regime
17. Vegetation dynamics models

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

## **Methodology**

The learning activities used in the course will be the following:

1. Theoretical block

The theoretical part will be done mainly by master classes, recognizing that the theoretical and practical blocks are very integrated with each other.

Master classes:

Theoretical knowledge will be transmitted, mainly, in the classroom through master classes, with ICT support. Apart from the selected bibliography, students will have a diversified material for the follow-up of the classes.

## 2. Practical block

This block consists of two works (one for each part of the program) that students will do in groups and autonomously, according to the instructions of teachers. In addition to their work they will have participative activities that will help them carry them out: field trips, seminars and tutorials.

Field trip:

A two-day field trip will be done. That will allow students to know some of the main vegetation formations of Catalonia; this will be the basis for one of the two works of the program. Therefore, one of the two practical works will be based on this field trip and the evaluation of this work will also include the assistance and the activities carried out at the field trip.

Tutored fieldwork:

The students will carry out an autonomous and supervised fieldwork. In this work they will have to carry out various field surveys that will be exposed in seminars, including the design of the study, the results and their discussion.

Seminars:

Sessions mainly aimed to monitoring, guide and evaluate by the teaching staff the two works carried on by students. They will also serve to expose the progress and the results of these works.

## 3. Tutorials:

The schedule of the individualized tutorials will be specified by the teachers through virtual campus and by electronic means. There will also be group tutorials in the classroom with the aim of guiding the development of the works of the practical block.

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

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Computer seminars	1	0.04	1, 2, 4, 5
Fieldtrip	16	0.64	1, 2, 7
Master classes	24	0.96	1, 2, 6
Seminar	16	0.64	3, 4, 7
Type: Supervised			
Field work	20	0.8	3, 5, 8, 6, 7

Type: Autonomous

Reports writing	30	1.2	2, 3, 4, 8, 7
Study	39	1.56	1, 2, 4, 5

## Assessment

The evaluation will be based on activities corresponding to different types: exams, oral presentations in public, written reports, written tests in the classroom. The program is structured in two parts that comprise approximately half of the total. In each part there is a theoretical block and a practical one, as detailed below:

### Theoretical block (55% of the grade)

The theoretical block is evaluated with two activities that correspond to two partial examinations worth each one 30% (first partial) and 25% (second partial) of the total note; they correspond to the two parts of the program.

There is a final exam to those students who have not obtained at least 5 points of each of the two partials exams. Therefore, these partial exams are eliminatory; if a student obtains a note greater than or equal to 5 for a given partial exam it will be considered that the respective part of the program is approved. If one of the two partials is not passed (grade less than 5), the final exam will only be done for this partial exam. If both partial exams are not passed, students must do in the final exam the program corresponding to the two partials. The final exam will not serve to raise the grade of the approved exams.

Once the final recovery exam has been made (if applicable), a grade of at least 4.5 must be obtained for each part to pass.

### Practical block (45% of the grade)

The practical block is structured in two works, which represent 20% (first part) and 25% (second part) of the total grade. These works comprise evaluable activities that include written works (including support with ICTs), public oral presentations and group discussions. They may also include individual written tests on the activity carried out by each student.

In order to be able to pass this block, a grade of at least 4.5 of each one of the works must be obtained.

The recovery system envisages a written test of recovery of the examinations of the first and second part, as well as a portfolio of practical work, particularly in the second part, where the different sequential deliveries, resulting from the work carried out, oral presentations and group discussions, allow a recovery of the activities.

To participate in the recovery, 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.

Therefore, students will obtain the "Non-Valuable" qualification when the assessment activities carried out have a weighting percentage of less than 67 in the total grade.

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
First Part Exam	30	2	0.08	1, 2
First Part Work	20	0	0	3, 4, 7

Second Part Exam	25	2	0.08	1, 2, 6
Second Part Work	25	0	0	4, 5, 8, 6

## Bibliography

- BLANCO, E., CASADO, M.A., COSTA, M., ESCRIBANO, R., GARCIA, M., GENOVA, M., GOMEZ, A., GOMEZ, F., MORENO, J.C., MORLA, J.C., REGATO, P. & SAINZ, H. 1997. Los bosques ibéricos. Ed. Planeta. Barcelona
- BOLÒS, O. 2001. La vegetació dels Països Catalans. Ed. Aster. Barcelona
- BONHAM, C.D. 2013. Measurements for Terrestrial Vegetation. Wiley-Blackwell.
- COLLINSON, A.S. 1977. Introduction to World Vegetation. G. Allen & Unwin Publ. London.
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- FOLCH et al. 1984. Historia natural dels Països Catalans: Vegetació, volum 7. Ed. Enciclopèdia Catalana. Barcelona.
- FOLCH et al. 1988. Biosfera. Ed. Enciclopèdia Catalana. Barcelona.
- GARNIER, E., NAVAS, M.L., GRIGULIS, K. 2015. Plant Functional Diversity. Oxford Univ. Press.
- KEDDY, P.A. 2017. Plant Ecology 2nd ed. Cambridge Univ. Press.
- KENT, M. 2012. Vegetation description and data analysis, (2<sup>nd</sup> ed). Wyley-Blackwell Ed.
- LLORET F., SOLER A., VAYREDA J., ESTEVAN H., TERRADAS J. (2009) Atles de les plantes llenyoses dels boscos de Catalunya. Ed. Lynx, Barcelona, 192 pp. Accés on line: <http://oslo.geodata.es/ftp/llenyoses/>
- NINYEROLA M., SERRA-DÍAZ J., LLORET F. Atlas de idoneidad topo-climática de leñosa. Accés on line: <http://opengis.uab.es/IdoneitatPl/index.html>
- PIÑOL, J. & MARTÍNEZ-VILALTA, J. 2006. Ecología con números. Ed. Lynx. Barcelona.
- TERRADAS, J. 2001. Ecología de la vegetación. Ed. Omega. Barcelona.
- van der MAAREL, E. 2005. Vegetation Ecology. Blackwell.
- WALTER, H. 1988. Vegetació i zones climàtiques del Món. Ed. PPV S.A. Barcelona.
- Web links for different parts of the program will also be provided.