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2023/2024

Vegetation Analysis and Mapping

Code: 100804
ECTS Credits: 6

Degree	Type	Year	Semester
2500250 Biology	OB	2	2

Contact

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Teaching groups languages

You can check it through this link. To consult the language you will need to enter the CODE of the subject. Please note that this information is provisional until 30 November 2023.

Teachers

Ramon Perez Obiol

Prerequisites

The emphasis on spatial distribution of vegetation makes it advisable to have biological and geographical knowledge of the territory, especially in Catalonia and the Iberian Peninsula. It will also be useful to have the skills acquired in the Botany subject.

Objectives and Contextualisation

This subject focuses on the study of plant biodiversity from a hierarchical perspective. The principles are transmitted to analyze

supraspecific structures (plant communities and biomes) as well as a vision of the relationship between organisms with the physical and

biotic environment.

This subject is complementary to Botany (where biodiversity, biology and evolution of plants have been studied at a specific level) and is

essential for studying subjects such as Biology and diversity of cryptogamous plants, Biology and diversity of phanerogams.

We can divide the subject into three blocks:

1) synthetic description of the types of vegetation and existing biomes.

2) analysis of the spatial and temporal patterns that are observed in the vegetation

3) study of cartographic techniques (Geographical Information Systems and Remote Sensing) that allow the spatial and temporal analysis

and management of vegetation.

Competences

- Apply statistical and computer resources to the interpretation of data.
- Be able to analyse and synthesise
- Characterise, manage, conserve and restore populations, communities and ecosystems.
- Describe and identify the levels of organisation of living beings.
- Develop a sensibility towards environmental issues.
- Identify and classify living organisms.
- Work in teams.

Learning Outcomes

1. Apply statistical and computer resources to the interpretation of data.
2. Be able to analyse and synthesise.
3. Characterise, manage and conserve plant communities.
4. Describe and identify the levels of organisation of plants.
5. Develop a sensibility towards environmental issues.
6. Identify and classify the plants.
7. Work in teams.

Content

Vegetation mapping

Basic concepts of cartography

Geographic Information Systems

Remote sensing principles

Spatial analysis and cartographic modeling

Methodological tools for the description of the territory

Analysis and description of vegetation

Basic concepts of biogeography of vegetation

Dynamics of vegetation

Distribution and vegetation of the World

Vegetation of Europe and the Mediterranean basin

Physical environment, biogeography and vegetation of the Iberian Peninsula

Deciduous, Needleleaf and sclerophyllous broadleaf forests

Shrub formations

Spatial and temporal patterns and dynamics

Indicators of the evolution of the landscape

Climatic dynamics

History of vegetation

Disturbances

Methodology

The teaching methodology is based on theoretical and practical face-to-face activities (computer activities, field survey and classroom lessons).

Part of the knowledge of this subject will be transmitted from the theoretical lectures where it is intended to influence aspects that can be difficult to understand through self-learning.

This subject presents a strong practical component since we consider these as an indissociable part of theoretical botanical knowledge. We will distinguish between computer classroom practices and field surveys. In the first case, students will have a practical guideline that will guide them through exercises designed to familiarize them with the GIS and Remote Sensing as critical users. In the second case, two field surveys will be realized in order to visualize a latitudinal and altitudinal gradient where the student will be able to observe different types of vegetation. The student will prepare a report that will include the environmental and landscape features of the itineraries visited. Therefore, it is expected that students have an active role during their departure in order to explain the main characteristics of the areas visited. The teacher will logically complete these explanations. Finally, students will give a synthesis of the different natural spaces displayed during the field surveys and worked cartographically to prepare the report. Therefore, this synthesis will be the result of using the methodologies learned both during GIS practices and during field exits.

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			
Computing classroom activities	14	0.56	1, 3, 2, 7
Field survey	12	0.48	4, 6, 2
Theory classes	26	1.04	3, 4, 5, 2

Type: Autonomous			
Practical deliveries	49.5	1.98	1, 3, 4, 6, 2, 7
Study	46	1.84	1, 3, 4, 6, 2, 7

Assessment

Assessment activities

Exams

The exams will be test-type with multiple choice. There will be two partial exams that will contain questions related to the theoretical sessions but also with the practices.

There will be the right to recover the partial exams (one of the two or both) at the end of the semester. During this final exam, you can also choose to improve your grade, with the final grade being the highest of those obtained. If you want to raise your grade (having passed the partials), you must notify the professors by mail three days in advance.

Report on the landscape analysis of a natural space

Each group will present this report orally (during the field survey) and written (after the field survey).

General considerations

Minium grade to skip final exam

Students will not have to recover a partial (during the final exam) as long as they have a grade equal to or greater than 5.

Final note

A student will have the final mark (weighted average, see the section of assessment activities) provided that he / she complies that the minimum mark of the two examinations (considering the highest note between the partial ones or the final) is equal or greater than 5 and that the minimum grade of the practical report is equal to or greater than 5. In case of being inferior the student will appear as suspended unless it is considered non-assessable.

Non-assessable

A student receives the non-assessable qualification if the mark of one of the 3 assessment activities is missing from him or if he does not assist to computer classroom practices or field surveys without justification.

Assistance

Attendance to the computer classroom practices and the two field surveys will be mandatory. Unjustified absence will entail apenalty or even, at the discretion of the teacher, be considered non-assessable.

Non-continuous assessment

On the same day as the second partial of the continuous assessment, a single exam will be held including both partials.

Given that the practices (computer lab and field survey) are mandatory, they will be able to hand in the report/inform without any problem on the same day of the single exam. In addition, there are no additional assessment activities.

Therefore, the single assessment will be identical to the continuous one.

*The proposed assessment may undergo some modification depending on the restrictions on attendance imposed by the health authorities.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exam (1st partial)	33.3%	1	0.04	3, 4, 6, 2
Exam (2nd partial)	33.3%	1	0.04	3, 4, 6, 2
Practicum dossier	33.3%	0.5	0.02	1, 3, 4, 6, 5, 2, 7

Bibliography

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Tutorial MiraMon: http://www.creaf.uab.es/miramon/

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WALTER, H. 1988. Vegetació i zones climàtiques del Món. PPV S.A. Barcelona.

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. Edit. Planeta. Barcelona.

BOLÒS, O. 2001. La vegetació dels Països Catalans. Ed. Aster. Barcelona

FOLCH, R. 1986. La vegetació dels Països Catalans. Ketres Ed. Barcelona.

FOLCH R, FRANQUESA T, CAMARASA JM. 1984. Vegetació. Història Natural dels Països Catalans. vol 7. Ed. Enciclopèdia Catalana. Barcelona.

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

Software

MiraMon 9

Google Earth Pro

Microsoft Excel