Universidad Zaragoza

Academic Year/course: 2024/25

25215 - Ecology II

Syllabus Information

Academic year: 2024/25
Subject: 25215 - Ecology II
Faculty / School: 201 - Escuela Politécnica Superior
Degree: 571 - Degree in Environmental Sciences
ECTS: 6.0
Year: 2
Semester: Second Four-month period
Subject type: Compulsory
Module:

1. General information

The objectives of this subject are to provide knowledge about abiotic and biotic factors and interactions that explain the abundance and distribution of organisms, as well as the functioning of the following levels of organization of life: communities, ecosystems, landscape-territory and biosphere. It is a core subject in the environmental sciences and is linked to numerous subjects, which provide it with basic knowledge and to which it gives conceptual support. It plays a key role in module 1 of the curriculum.

The objective of the subject is aligned with some of the Sustainable Development Goals, in particular with SDG 4 (4.7), SDG 14 (14.1, 14.2, 14.3) and SDG 15 (15.1).

In order to make the most of the subject, it is recommended to have passed the subject Ecology I.

It is also advisable to have passed the subjects of Botany and Zoology, Biology, Fundamentals of Geology and Edaphology, as well as those related to basic sciences.

2. Learning results

In order to pass this subject, the students shall demonstrate they has acquired the following results:

1. --To analyse the influence of biological interactions on ecological complexity.
2. --To know the meaning and apply the methods for estimating biological diversity.
3. -- To interpret communities and ecosystems over time, incorporating the concept of perturbations
4. --To know the meaning and apply the methods for estimating biological production.
5. -- To use the concept of "environmental services" in their valuation of ecosystems
6. --To incorporate and manage the contingent view of nature in their analysis of ecological processes.
7. -- To identify and critically assess the main syndromes of Global Change
8. -- To analyse ecological information critically.
9. -- To perform information searches, selection of documentation in databases and academic search engines related to Ecology
10. - To communicate Ecology ideas and concepts correctly orally and in writing

All of these learning results are part of SDGs 4, 14 and 15

3. Syllabus

ECOSYSTEMS MODULE

1. Energy and matter in ecosystems
2. Biological production
3. Nutrient cycles
4. Trophic networks

INTERACTIONS MODULE

1. Intraspecific competition
2. Types of interactions
3. Interspecific competition

4. Exploitation: Herbivorism, predation, parasitism

COMMUNITIES MODULE

1. Nature and structure of the communities

2. Biological diversity

3. Succession and disturbances

LANDSCAPE-BIOSPHERE MODULE

1. Human-Nature Relationship

2. Global Change

3. Ecology's Contribution to Sustainable Development

4. Academic activities

Master classes:

Theoretical sessions in which the contents of the subject will be explained 30 hours

Practical classes:

- Laboratory practices: 10 hours

A practice script is provided with the face-to-face and non-face-to face activities to be carried out.

- Field practices: 20 hours

2 one-day outings (8 hours) and 1 half-day outing (4) in which work material and scripts are provided to be completed by students through direct observations in the field.

Production of a practical work solving the practical cases proposed in each of the practices. There will be an oral examination of the practical diversity block.

Student's autonomous work (84h) and evaluation (6h)

All the activities proposed in the subject help to achieve the learning results related to the SDGs, in both theoretical and practical sessions.

5. Assessment system

This subject offers the possibility of continuous evaluation, for which it is recommended to attend at least 80% of the face-to-face activities. In this case, it will be essential to complete and pass with a minimum grade of 5 the following evaluation activities:

- Two face-to-face written tests, each one for half of the theory program (50% of the grade). A minimum grade of 5 out of 10 in each of them will be necessary to average. Each test may include multiple-choice, short answer, essay and problem questions.

- The practices will be divided into two blocks: Plant diversity in terrestrial ecosystems (30%) and Aquatic ecosystems (20%). These two blocks must be passed with a grade of 5 to be averaged with the theory block. In the block of diversity there will be two field trips and two practical sessions that will be evaluated by means of an oral exam (20% of the grade of the subject) and a paper (10% of the grade). In the aquatic ecosystems block, there will be one outing and three practice sessions and their evaluation will be done through exercises and reports of each session.

The global evaluation test will consist of the following activities:

- Elaboration of a general report that includes the exercises proposed in each of the practices (25%).

- Written and face-to-face test at the end of the term according to the Polytechnic School exam schedule (75% of the grade). The test may include multiple-choice, short-answer and essay questions, and will include all the theoretical and practical subjects of the subject.

If the final grade is ≥5 but any of the grades of the evaluation tests of the subject is failed, the grade in the records will be a "4.0 fail". As long as the practical block is passed and the student wishes, the grade corresponding to this block will be saved for the second call of the same academic year.

The success rate in the subject for the last three years is 96.55% (2020-21) and 96.00% (2021-22) and 96,77% (22-23).

6. Sustainable Development Goals

4 - Quality Education
14 - Life Below Water
15 - Life on Land