

Advanced Content in Terrestrial Ecology

Code: 42916
ECTS Credits: 6

Degree	Type	Year	Semester
4313774 Terrestrial Ecology and Biodiversity Management	OT	0	1

Contact

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Use of Languages

Principal working language: spanish (spa)

Teachers

Daniel Sol Rueda

José David García Callejas

Prerequisites

The module does not have specific requirements.

Objectives and Contextualisation

The objective of the module is to provide students with an updated vision of the main foundations and approaches of terrestrial ecology, emphasizing the most recent advances in the discipline as well as the main concepts that have been reviewed and consolidated over time. In addition, general aspects of the acquisition and limits of scientific knowledge through research, as well as transversal aspects that affect different topics, such as the formalization of ecological concepts, will be worked at different spatial and temporal scales. Following these goals, the procedure for communication of the results of scientific research will be discussed, analyzing the structure of scientific texts, mainly articles, and the writing and review process.

Competences

- Communicate, give presentations and write articles in English.
- Critically assess the strong and weak points of a study. Organise, plan and manage projects related to the area of study.
- Evaluate and analyse the diversity of animal, plant and fungal organisms from an evolutionary and functional perspective, and their interactions with the medium.
- Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise a project.
- Understand and apply the most cutting-edge and influential theories in terrestrial ecology and conservation of biodiversity, and assess their importance for mitigating the main environmental problems caused by human activity.
- Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.

Learning Outcomes

1. Analyse technical and scientific documents written in English and understand presentations in English.
2. Describe the main processes that determine organisms' interactions with each other and with the medium.
3. Discuss ideas, using scientific evidence and arguments.
4. Display the (constructively) critical spirit that is essential to science.
5. Identify some of the main advances and controversies in current ecological science.
6. Integrate evolutionary factors in the interpretation of current ecological patterns.
7. Interpret and evaluate the principles and general applications of terrestrial ecology.
8. Know what distinguishes science from other forms of knowledge.
9. Situate ecology in the context of science.
10. Use the main tools for searching in specialist literature.

Content

General principles:

Scientific knowledge and channels of scientific communication

Reproducible science

Fundamentals of terrestrial ecology:

Evolutionary ecology

Macroecology and phylogeography

Autoecology and phenotypic plasticity

Structured populations and metapopulations

Loss of biodiversity and ecosystem functioning

Community assembly

Interspecific interactions: antagonism, facilitation, networks

Functional biogeography

Fluxes and balances of water, carbon and nutrients

Ecosystem services

Global change

Methodology

The module consists in reading and discussing a selection of texts, mainly scientific articles. Based on these publications, the main themes of terrestrial ecology are presented, as well as the process of acquisition and transmission of scientific knowledge. Therefore, the corpus of ecological knowledge will be acquired through the contextualization of the specific problems and situations described in the papers. This approach illustrates realistically the interrelation between different concepts and knowledge items and shows in a realistic way the way in which the appearance and consolidation of knowledge in this discipline occurs.

Therefore the methodology of the module is based on the reading, analysis and discussion of scientific texts of ecology, carrying out different activities that include text reading, writing of essays, preparation and oral and public presentation of works, resolution of exercises, in addition to more theoretical lectures and tutorials.

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			
Seminars	36	1.44	1, 8, 3, 4, 2, 5, 6, 7, 10, 9
Type: Supervised			
Tutorials	4	0.16	1, 8, 3, 4, 2, 5, 6, 7, 10, 9
Type: Autonomous			
Personal work reading and analysis of texts	67.5	2.7	1, 4, 2, 5, 6, 7, 10, 9
Preparation of reports, presentations and materials	40	1.6	1, 4, 2, 5, 6, 7, 10, 9

Assessment

- Attendance and participation in class (20%): the involvement, participation and rigor of the student will be evaluated.

- Student folder with documents and materials generated as a result of module activities, including those carried out in class and at home (50%).

- Final written comment of an article following the format of a publication (30%)

A minimum attendance of 80% is required in the sessions scheduled by each lecturer

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Attendance and active participation in classes and seminars	20%	1	0.04	1, 8, 3, 4, 2, 5, 6, 7, 10, 9
Documents and materials presented in class	50%	1	0.04	1, 8, 3, 4, 2, 5, 6, 7, 10, 9
Final module work	30%	0.5	0.02	1, 8, 3, 4, 2, 5, 6, 7, 10, 9

Bibliography

General reference text:

Levin, S.A. (2009) The Princeton Guide to Ecology. Princeton University Press.

The specific list of texts (papers) that will be the basis of the module will be provided before the beginning of the classes.

Software

Not applicable

