Universitat Autònoma de Barcelona

2022/2023

Case Studies in Environmental Biology

Code: 100844
ECTS Credits: 6

Degree	Type	Year	Semester
2500251 Environmental Biology	OB	3	2

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

Bernat Claramunt Lopez
Rafael Poyatos López

Prerequisites

There are no official prerequisites, but as that is a subjecs with transverals contents, it would be appropriate to have passed the majority of the subjects of the previous courses.

Objectives and Contextualisation

This subject aims to train students in the analysis and assessment of real environmental problems and their management options, emphasizing a multicritical analysis that integrates the advantages and difficulties of the different options and the commitments that involves these resolution

Problems are analyzed as case studies and their resolution implies, on the one hand, the integration and consolidation of knowledge and skills acquired in subjects taken in previous courses and, on the other, the acquisition of transversal skills and new knowledges associated with the specific subject areas.

The specific objectives are the following:

(1) Analyze rigorously a specific environmental problem based on information provided by the teaching staff and additional information obtained independently by the student.

(2) Identify different options from the approach of a specific environmental problem, and quantify (whenever possible) and evaluate the current and future environmental implications of the different management alternatives proposed, including the interactions between different factors .

(3) Communicate efficiently analysis and diagnosis of a specific environmental problem.

Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Adapt to new situations.
- Communicate efficiently, orally and in writing.
- Develop creativity.
- Diagnose and solve environmental problems regarding the biological environment.
- Exercise leadership.
- Institute and develop management systems related to environmental biology.
- Interpret and design the landscape.
- Introduce changes in the methods and processes of the field of knowledge to provide innovative responses to the needs and demands of society.
- Make decisions.
- Manage information
- Obtain information, design experiments and interpret results.
- Participate in environmental impact assessments regarding the biological medium.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.
- Take the initiative and demonstrate an entrepreneurial spirit.
- Work individually and in teams.

Learning Outcomes

1. Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
2. Actuar en l'àmbit de coneixement propi avaluant les desigualtats per raó de sexe/gènere.
3. Adapt to new situations.
4. Communicate efficiently, orally and in writing.
5. Develop creativity.
6. Establish different options for solving problems that affect the biota.
7. Establish the conceptual content and the methodological requirements for solving a specific environmental problem.
8. Exercise leadership.
9. Explain to different types of audiences the best option to take when dealing with a particular problem that affects the biota.
10. Introduce changes in the methods and processes of the field of knowledge to provide innovative responses to the needs and demands of society.
11. Make decisions.
12. Manage information
13. Obtain information, design experiments and interpret results.
14. Simulate different future scenarios based on various alternatives for managing, conserving or restoring biological resources, focusing on specific cases and beginning with multicriteria analyses.
15. Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
16. Take the initiative and demonstrate an entrepreneurial spirit.
17. Work individually and in teams.

Content

The course is structured in three / four independent case studies. The contents of these cases are eminently transversal within the field of environmental biology and may vary between years in the topics to be adressed according to current criteria and interest. Emphasis will be placed on case studis about complex themes that allow approaches from different points of view. Moreover the cases have to consider both current and future environmental impacts and different alternatives of management.

Typically, case studies will include issues related to: protected areas and the conservation of threatened species; the assessment of the environmental benefits and costs of management practices; ecosystem services; with considerations at local, regional and global level (e.g., organic farming vs. conventional agriculture); and including the analysis and comparison of different scenarios of global change.

In addition, the student have seminars (mostly with external speakers) and practical classes to complete the training of students and provide the necessary tools to solve the case studies proposed.

Methodology

The methodology of this subject is centered in problem-based learning. The students must to analyse different environmental problem in form of case studies The professor has multiple tasks. Firstly, the professor provides the required information for the case, indicates where additional information can be founded, and helps to critically analyse such information. Secondly, and this is of great importance for this subject, the professor guides the students through the learning process, i.e. the resolution of the case studies, in order to make this process useful for students to obtain the different skills include in this subject.

The study cases will operate as independent units. In general, students will work in groups of 4-5 people, although some activities will be evaluated individually (see evaluation section). The members of the groups may be different for each study case. The tasks of the different groups, or even of each member of each group, may be different within the same study case,

To achieve such objective, this subject combines the following activities:

(A) Lectures and seminars (one group), where different case studies, and their functioning rules, are explained to the students, together with the great questions to be discussed in each case, and the provision of some necessary tools for the effective resolution of each case. In some of the case studies, this will imply seminars where expert speakers, external to the UAB, will frame the studied problem, or give his/her professional point of view. These seminars will last one hour (50 minutes effective time).

(B) Group seminars (the class is divided into several groups), where each case study is supervised by the professors and where some evaluating activities are included. These sessions will serve to guide the students through the case resolution process, since most of the task that are necessary to complete the case will depended on the students off-class work, and the tutoring sessions (see below).These classroom sessions will last two hours divided into two consecutive 50-minutes classes, with a 10 minutes break.

(C) Computers-based exercises (the class is divided into several groups), where students will work with specific tools, or software to solve different exercises. These sessions will last two hours divided into two consecutive 50-minutes classes, with a 10 minutes break.

(D) Field sessions (the class is divided into several groups), where the area of one the case studies takes place, is visited. It will include seminars and interviews with some of the related stakeholders, and aims at giving a closer, and more accurate, view of the studied environmental problem.

(E) Tutoring sessions, aiming at resolving questions and guiding students further than in the classroom practical sessions. The schedule of tutoring sessions will be set through the virtual campus.

All the information regarding the cases will be available on the virtual campus.

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			
Computer sessions	4	0.16	3, 5, 8, 12, 13, 11, 16, 14, 17
Field sessions	12	0.48	1, 2, 15, 10, 6, 7, 14
Group seminars	24	0.96	1, 2, 15, 3, 4, 5, 8, 12, 10, 13, 6, 7, 11, 16, 9, 14, 17
Lectures and guests seminars	10	0.4	1, 2, 15, 10, 6, 7, 9, 14
Type: Supervised			
Tutorials	7	0.28	1, 2, 15, 3, 4, 5, 8, 12, 10, 13, 6, 7, 11, 16, 9, 14, 17
Type: Autonomous			
Completion of group work	80	3.2	3, 4, 5, 8, 12, 13, 11, 16, 17
Individual study	13	0.52	3, 4, 5, 12, 13, 11, 17

Assessment

Depending on the case, the evaluation includes a series of evaluation activities such as:

A scientific dissemination article that aims to convey to a non-scientific public the conclusions of the case 1.

The design of a didactic activity based on methodologies of active learning like resolution of the case 2.

An oral communication presented in group as a result of the project work carried out in case 3.

Each one of the cases encompasses its evaluation strategy in the definition of its own lecturer portfolio.

Due to the fact that the work of case resolution is the result of a whole group work process based on certain practical and procedural contents, it is not possible to re-evaluate work done in groups. However, students may opt for a final revaluation of the individual examinations or works provided they have obtained a grade equal to or greater than 3.5 in the subject

The student will be graded as "No Avaluable" if the weighthin of all conducted evaluation activities is less than 67% of the final score".

Attendance to practical sessions (or field trips) is mandatory. Students missing more than 20% of programmed sessions will be graded as "No Avaluable"

Studentswho are unable to attend an individual assessment test due to a justified cause (such as a health problem, death of a relative up to the second degree, accident, having the status of elite athlete and having a competition, or sports event, of obligatory attendance, etc.), and provide the required official documentation to the class coordinator, will have the right to repeat the test in a different date.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Lecturer portfolio (Cas 1)	33,333%	0	0	1, 2, 15, 3, 4, 5, 8, 12, 10, 13, 6, 7, 11, 16, 9, 14, 17
Lecturer portfolio (case 2)	33,333%	0	0	1, 2, 15, 3, 4, 5, 8, 12, 10, 13, 6, 7, 11, 16, 9, 14, 17
Lecturer portfolio (case 3)	33,333%	0	0	1, 2, 15, 3, 4, 5, 8, 12, 10, 13, 6, 7, 11, 16, 9, 14, 17

Bibliography

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Herendeen RA (1998) *Ecological Numeracy. Quantitative Analysis of Environmental Issues*. John Wiley & Sons, New York, USA.

Kangas A, Kangas J & Kurttila M (2008) *Decision Support for Forest Management. Managing Forest Ecosystems*. Springer, Berlin, Germany.

Kareiva, & Marvier, M. (2015). Conservation science: balancing the needs of people and nature. (Second edition). Roberts and Company

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Morris, & Doak, D. F. (2002). Quantitative conservation biology: theory and practice of population viability analysis. Sinauer Associates.

Newman EI (2001) *Applied Ecology and Environmental Management*. 2nd Edition. Wiley-Blackwell, Oxford, UK.

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Underwood L (1998) *Case Studies in Environmental Science*. Saunders College Publishing, Philadelphia, USA.

VVAA (1986) *Ecological Knowledge and Environmental Problem-Solving: Concepts and Case Studies*. National Academies Press, Washington, USA.

Webs:

Base de dades Com(p)adre de models matricials: https://compadre-db.org/

IPCC - Intergovernmental Panel on Climate Change: http://www.ipcc.ch/

IUCN Red list- The IUCN Red List of Threatened Species: http://www.iucnredlist.org/

Millenium Ecosystem Assessment: http://www.millenniumassessment.org/

Paquet rgbif per accès a dades GBIF (Global Biodiversity Information Facility): https://www.gbif.org/tool/81747/rgbif

United Nations Educational, Scientific and Cultural Organization. Environment http://www.unesco.org/new/en/natural-sciences/environment/

Software

Excel and R (R-Studio)