COURSE INFORMATION

CONSERVATION BIOLOGY

Code number: 757709211
Degree in Environmental Sciences
Academic Year: 2018-2019
Core course 3rd year
First semester: 2.5 hours per week
6 ECTS

TEACHING STAFF

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PROGRAMME/SYLLABUS

1. DESCRIPTION

Conservation Biology is the study of attempts to protect and preserve biodiversity. It focuses on both the biological and social factors that affect the success of conservation efforts and on determining ecosystems and species whose conservation is a high priority.

Under the influence of the biodiversity crisis, the discipline of Conservation Biology has developed into an important field of study, drawing material from all areas of biology and from law and management, and with its own conceptual and theoretical strengths. The aim of this subject is to provide students with a multidisciplinary education in Conservation Biology based on the core subjects of botany, zoology, ecology, genetics, etc., plus appropriate areas from mathematics and statistics, management and policy.

Conservation biology is an essential subject in the definition of the professional profile for the future Graduate in Environmental Sciences. In the first place, it is crucial to delimit scientifically the main problem that is the raison d'être of these professionals: the environmental crisis unleashed by the human being, responsible for the sixth extinction.

Secondly, it contributes to the development of a sensitivity to this ecological crisis and to the adoption of positive attitudes toward its resolution. Third, it provides practical tools and basic theoretical foundations to address the main conservation problems, especially those from our nearest environment.

Due to its global and synthetic nature, Conservation Biology participates from the knowledge the student has got throughout the previous courses, such as Fauna, Botany, Ecology, Biology, Environmental Engineering, Environmental Law and Administration, Environment and Society, etc. With all them, it establishes links useful to consolidate the multidisciplinary formation of the future professional in order to face properly the environmental problems that cause real and deep impacts on biodiversity.

2. PREREQUISITES

This is a course for people who are interested in biodiversity and in protecting and restoring the natural environment. Students must have a range of skills from field and lab work to communication and research. To enroll in the program you must be studying a degree in Environmental Science, Biology or similar. People with a sound knowledge in ecology, evolution, zoology, botany (or equivalent) would be welcome.

English level: B2.

3. OBJECTIVES/COMPETENCES

On completion of this course the successful learner will be able to:

- Demonstrate an understanding of the ecological and evolutionary principles that underlie biological diversity.
- Explain proximate and ultimate threats to biodiversity and the general consequences of biodiversity loss.
- Articulate the enormous responsibility humans have as global land stewards.
- Identify linkages among conservation problems across biological scales (genes to landscapes) and geographical scales (local to global).
- Demonstrate how ecological and evolutionary principles are applied to solving conservation problems.
- Apply critical reasoning skills to assessment, analysis, and synthesis of conservation problems and solutions.
- Demonstrate a greater understanding of conservation problems and cultural differences in perceptions of problems and appropriate solutions.

4. TEACHING METHODOLOGY

This will take the form of a weekly Lecture/Seminar which will be conducted in an interactive manner, actively encouraging discussion and dialogue among the students.

The theoretical teaching consists of lectures given by the teacher, illustrated with Power Point presentations or other means, all of which can be consulted on the Virtual UHU Moodle platform.

Practical teaching will take place over the course of two field trips, the first to the Doñana Biological Reserve and the second to the Odiel Marshes Natural Park, both top priority conservation areas in Europe.

Students must complete their learning by doing some critical readings/essays on theoretical or practical aspects of Conservation Biology. These will be based on recently published papers on new advances in this science or in field data collected during the excursions or other practical activities.

5. CONTENTS

Theory:

1. CONSERVATION BIOLOGY, BIODIVERSITY AND CONSERVATION MANAGEMENT (3 H)
2. HUMAN ECOLOGY AND BEHAVIOR AND CONSERVATION OF BIODIVERSITY (3 H).

3. WHY ARE THE SPECIES EXTINGUISHED? (6 H).
4. THE PROBLEMS OF THE SMALL POPULATIONS AND THEIR CONSERVATION (3 H).
5. DIAGNOSIS OF CONSERVATION PROBLEMS: HABITAT (3 H).
6. GLOBAL CHANGE AND CONSERVATION OF BIODIVERSITY (3 H).
7. CRITERIA FOR VALUATION OF SPECIES AND AREAS (3 H).
8. SOME GENERAL SOLUTIONS TO CONSERVATION PROBLEMS (6 H).

Activities

- Seminar: Scientific information in Conservation Biology.
- Seminar: Identification and recognition of biodiversity: birds.
- Practice: Evaluation of the biodiversity of the avifauna in relation to the characteristics of the habitat.
- Seminar: Conservation, citizen science and social networks.
- Seminar: The promotion of transparency in the Science of Conservation.
- Seminar: The dilemmas of Climate Change.

Field trips:

Visit to three top biodiversity areas:

- PARQUE NATURAL SIERRA DE GRAZALEMA (October)
- Doñana (November)
- Odiel Marshes (December)

6. BIBLIOGRAPHY

There is no set any text that covers the whole course. However, readings, course information and announcements will be made available online in the Moodle platform.

If you need general and basic texts in Conservation Biology the following are recommended (in bold the most recommended literature):

DELIBES, M. 2001. Vida. La naturaleza en peligro. Temas de Hoy.

GASTON, K.J. & SPICER, J.I. 2004. Biodiversity. An Introduction. Blackwell Publishing, Oxford, UK.

GIBBS, J. P. M. L. HUNTER & E. J. STERLING. 2008. Problem-Solving in Conservation Biology and Wildlife Management, 2nd Edition. Wiley-Blackwell.

GROOM, M. J., MEFFE, G. K. & CARROLL, C. R. 2006. Principles of Conservation Biology. Sinauer. Associates Inc. USA.

HUNTER M.L. & GIBBS J.P. 2009. Fundamentals of Conservation Biology. Wiley-Blackwell; Cambridge; UK.

KAREIVA, P. & M. MARVIER. 2015. Conservation science: balancing the needs of people and nature. Roberts and Company.

MACDONALD D. W. & K. SERVICE. 2006. Key Topics in Conservation Biology. Blackwell Publishing Ltd, Oxford, UK.

SINCLAIR, A., FRYXELL, J. & CAUGHLEY, G. 2005. Wildlife Ecology, Conservation and Management. Blackwell Science. ISBN-10: 1405107375.

SODHI, N. S. & EHRLICH, P. R. 2010. Conservation Biology for All. Oxford University Press, Oxford.

TELLERÍA J.L. 2012. Introducción a la conservación de las especies. Tundra Ediciones, Valencia.

VV.AA. 2004. Los retos ambientales del siglo XXI: la conservación de la biodiversidad en España. CSIC & Fundación BBVA. 346 páginas.

7. ASSESSMENT

Continuous assessment (35%): It consists in the evaluation of the follow-up of the course, including the attendance and participation to the classes, the activities and the field trips carried out during the course.This evaluation will involve up to 3.5 points in the final grade. To add these points, the student must have obtained in the final evaluation (final exam), at least 4.0 points.

Below is a Table with the scores awarded to each activity:

Activity	1	test	0.25
Activity	2	test	0.50
Activity	3	attendance and report delivery	0.50
Activity 4		Assistance and report	0.25
Activity 5		Assistance and report	0.50
Activity 6		Assistance and report	0.50
Field outputs		Assistance and delivery of reports	1.00

Given the face-to-face nature of the subject, the attendance to class, either theory or practice, as a small group or activity, it is considered mandatory and will pass signature control. Those who do not attend at least 70% of the classes will have to complete an additional specific exam to be able to score in the continuous assessment.
In the official exams, a specific exam will be given for those students who have not passed the continuous assessment or have not attended the sessions of small group activities and / or field trips. The exam will consist of a series of issues related to the content addressed in the small group activities and field trips.

Final exam (65%): For the final evaluation there will be a single exam of the subject with two sections:

1. A questionnaire with short questions that requires the student an effort of reflection, synthesis and application of knowledge acquired during the course (50% of the grade).

2. A test type test that allows the teacher to know the overall degree of assimilation of the complete syllabus by the student (50% of the grade).

FINAL GRADE:
The final grade will be the sum of the continuous assessment and the final exam grade. To add the corresponding grade to the continuous assessment it will be essential to have obtained 4.0 points in the final exam. In the evaluation of both sections, oral expression and written will be assessed, as well as spelling mistakes.