

66855 - Ecology and Ecotoxicology

Syllabus Information

Academic year: 2024/25

Subject: 66855 - Ecology and Ecotoxicology

Faculty / School: 105 - Facultad de Veterinaria

Degree: 617 - Master's in Global Health: Integration of Environmental, Human and Animal Health

ECTS: 3.0

Year: 1

Semester: Second semester

Subject type: Optional

Module:

1. General information

Students will learn the basics of how biological systems function at the population, community, ecosystem, and biosphere levels. This is focused on their influence on ecotoxicity and human health, with emphasis on the effects on the aquatic and terrestrial environment.

The dynamics of populations and their interactions, the assembly mechanisms of biological communities and biodiversity, and the processes of ecosystems are the natural capital from which society derives the environmental services it receives from natural systems, which are key to human health and well-being.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) Goal 6: Clean Water and Sanitation and Goal 15: Life of Terrestrial Ecosystems of the United Nations 2030 Agenda.

2. Learning results

- To assess and interpret the role of abiotic factors in the structure and functioning of ecological systems at different organisation levels.
- To differentiate and apply the different models of biological population growth. -To analyse the influence of biological interactions on ecological complexity.
- To know the meaning of biological diversity.
- To interpret communities and ecosystems over time, incorporating the concepts of ecological determinism, contingency and perturbation.
- To identify the main environmental services of ecosystems.
- To identify and critically assess the main syndromes of global change.
- To know the conceptual bases and the most common practices of conservation biology and ecological restoration.
- To know the main pollutants in the aquatic and terrestrial environment and their effects on human and animal health. -To understand the tests applicable to the study of ecotoxicity and their role in the legislative process.
- To understand the legislation of the subject matter.
- To acquire the capacity for autonomous learning in a responsible and committed manner.

3. Syllabus

1. Nature is in continuous change, rather than in equilibrium.
2. Abiotic factors in aquatic and terrestrial ecosystems
3. Interactions between species: importance of competition and mutualisms.
4. Assembly and dynamism of biological communities.
5. Biodiversity: ecological role and controlling factors
6. Biological production
7. Cycle of matter and biogeochemical cycles
8. Functioning of the biosphere and biomes
9. Conservation biology
10. Ecotoxicity assessment methods
11. Biomarkers. Monitoring
12. Atmospheric ecotoxicology
13. Aquatic ecotoxicology
14. Terrestrial ecotoxicology
15. Toxic risk analysis

16. Ecotoxicology legislation

4. Academic activities

Master classes: 20 h

Theoretical-practical sessions in which the contents of the subject will be explained.

Special practices: 10 h

Field work, in which the contents of the subject will be covered.

Teaching assignments: 20 h

Personal study: 23 hours

Assessment tests: 2 h

Total: 75 h

5. Assessment system

There will be a final written test based on short, multiple-choice questions. The acquisition of basic knowledge of the subject will be assessed. The grade of this activity will represent 60% of the final grade of the subject. This test must be passed with a grade of at least 5.0.

In addition, the student must submit a written paper on topics related to the practice performed, applying the concepts covered in the classroom sessions. The grade of this activity will represent 40% of the final grade of the subject. This test must be passed with a grade of at least 5.0.

6. Sustainable Development Goals

6 - Clean Water and Sanitation

12 - Responsible Production and Consumption

15 - Life on Land