COURSE DATA

DATA SUBJECT

Code: 43272
Name: Biodiversity and environmental protection
Cycle: Master's Degree
ECTS Credits: 6
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period

SUBJECT-MATTER

Degree	Subject-matter	Character

COORDINATION

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SUMMARY

Biodiversity and Environmental Protection is an elective course for the Master's degree in Biodiversity: conservation and evolution, which is taught during four months and is part of the master's degree in the Biodiversity and Ecosystem Conservation branch. The subject comprises theoretical and practical topics on aspects of the island theory help in the management and sustainability of both the terrestrial and the aquatic environment. In addition, it deals with geodiversity as a support for biodiversity and how organisms and ecosystems are affected by elements of the geological environment (lithology, structure, geomorphological features and dynamics of environments) that are involved in the characterization, delimitation and evolution of habitats.

The student should end up being able to understand the problems of fragmentation in order to conserve habitats. Ecosystem conservation is the best way to conserve biodiversity.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

The student should have knowledge of ecology, botany, zoology, geology, palaeontology and statistics.

COMPETENCES / LEARNING OUTCOMES

2148 -

Be able to access the information required (databases, scientific articles, etc.) and to interpret and use it sensibly.

Be able to access to information tools in other areas of knowledge and use them properly.

Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.

Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.

DESCRIPTION OF CONTENTS

1. The superficial geological environment

Geological processes with expression in the external part of the lithosphere. Lithology, structure and dynamics of geological environments as factors controlling habitats of natural species. Geodiversity and geological heritage. Geological information needed in the preparation of a paper or report on biology or environment. Paleontology and geological heritage. Typology and conservation of paleontological heritage.

2. The aquatic environment

Isolation and fragmentation. Island theory. Biological effects of fragmentation. Metapopulation models. Metacommunities: Hubbel's neutral theory, spatial and environmental effects; dispersal and ecological niche. Eco-evolutionary dynamics. Study models. Rotifers and cladocerans. Adaptation and life cycles. Sediment records. Ponds as microcosms.

3. The terrestrial environment

Conservation plans for endangered species. Monitoring and management of endangered species. Ex situ conservation techniques. Species reintroduction projects. Management of protected natural areas. Social aspects of conservation in the terrestrial environment.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Total hours	0,00

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	50,00
Independent study and work	20,00
Preparation of lessons	10,00
Preparation for assessment activities	10,00
Resolution of case studies	0,00
Total hours	90,00

TEACHING METHODOLOGY

Theoretical classes will take the form of lectures and discussions in groups or pairs.

Practical activities will take the form of field trips and laboratory activities.

EVALUATION

The course will be assessed by means of written exams and/or the presentation of assignments that will be assessed according to the following table:

Theory and assignments 60%

Seminars 30%

Attendance and participation 10%

REFERENCES

- Adams, W. M. 2004. Against extinction: The story of conservation. Earthscan Publications, London. - Ausden, M. 2007. Habitat management for conservation: A handbook of techniques. Oxford University Press, Oxford, New York - Begon M.; Townsend C.R. and Harper J.L. 2005. Ecology: from individuals to ecosystems, Fourth Edition, Wiley-Blackwell. - Carcavilla Urqui, L.; López-Martínez, J. y Durán Valsero, J. J. 2007. Patrimonio geológico y geodiversidad:

investigación, conservación, gestión y relación con los espacios naturales protegidos., I.G.M.E.C. Mus. Geomin. 7, 360 pp. - Carcavilla Urqui, L. 2012. Geoconservación, Catarata, 126 pp. - Fox, C. W.; Roff, D.A. and Fairbairn, D.J. 2001. Evolutionary Ecology. Oxford University Press, Oxford. - Instituto Geológico y Minero de España, 2017. Patrimonio Geológico, Gestionando la Parte Abiótica del Patrimonio Natural. Serie: Cuadernos del Museo Geominero, Nº21. Carcavila, L., Duque-Macías, J., Giménez, J., Hilario, H. Monge-Ganuza, M., Vegas, J., Rodriguez A. (Eds). ISBN: 978-84-9138-032-0 - Lampert, W. and Sommers U. 2007. Limnoecology. The Ecology of Lakes and streams. 2nd edition. Oxford University Press, Oxford.

- Gray, M. 2004. Geodiversity. Valuing and conserving abiotic nature. Wiley. 434 pp. - Hunter M.L. and Gibbs J. 2007. Fundamentals of Conservation Biology. Third edition. Wiley Blackwell. - Primack R.B. 2006. Essentials of Conservation Biology. Fourth Edition. Sinauer Sunderland, MA. - Sodhi, N.S. and Ehrlich P.R. 2010. Conservation Biology for all. Oxford University Press, Oxford, UK. - Van Dyke, F. 2008. Conservation Biology: Foundations, concepts, applications. Springer, New York. - Wetzel R.G. 2001. Limnology: Lake and River Ecosystems. 3rd edition. Elsevier, Academic Press, California.