



Study Plan

School: School of Sciences and Technology
Degree: Master
Course: Management and Conservation of Natural Resources (cód. 132)

1st Year - 1st Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
BIO08100M	Design and Analysis of Experiments in Ecology	Biology	6	Semester	162
BIO08101M	Management and Ecology of Animal Populations	Biology	6	Semester	162
BIO08102	Economics and Management of Natural Resources	*** TRANSLATE ME: Ciências Económicas e Sociais ***	6	Semester	162
BIO08103M	Management and Conservation of Terrestrial Plant Communities and Agro-Forestry Systems	Biology	6	Semester	162
BIO08104M	Soils and Resources Conservation	*** TRANSLATE ME: Ciências da Terra ***	6	Semester	162

1st Year - 2nd Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
PAO07372	Spatial Analysis	Geosciences	6	Semester	156
BIO08096M	Management of Fisheries and Game	Biology	6	Semester	162
BIO08097M	Management and Conservation of Terrestrial Fauna	Biology	6	Semester	162
BIO08098M	Estuarine Management and Conservation	Biology	6	Semester	162
BIO08099M	Management and Conservation of Coastal Marine Ecosystems	Biology	6	Semester	162

2nd Year - 3rd Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
BIO08105M	Ecotourism and Enhancement of Natural Resources	*** TRANSLATE ME: Ciências Económicas e Sociais ***	6	Semester	162
BIO08106M	Management and Conservation of Inland Waters	Biology	6	Semester	162
BIO08164	Seminar	Biology	1.5	Semester	14
Dissertation					

2nd Year - 4th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Dissertation					



Conditions for obtaining the Degree:

*** TRANSLATE ME: Para aprovação na componente curricular deste Mestrado, é necessário a aprovação (através de avaliação ou creditação), das seguintes unidades curriculares: { \ } newline

{ \ } newline

1.º Semestre { \ } newline

- 5 UC Obrigatórias num total de 30 ECTS { \ } newline

{ \ } newline

2.º Semestre { \ } newline

- 5 UC Obrigatória num total de 30 ECTS { \ } newline

{ \ } newline

3.º Semestre { \ } newline

- 3 UC Obrigatórias num total de 13.5 ECTS { \ } newline

{ \ } newline

Para obtenção do grau é necessário também a aprovação em Dissertação, no total de 46.5 ECTS, no 3.º e 4.º Semestre. ***

Program Contents

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Design and Analysis of Experiments in Ecology (BIO08100M)

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Management and Ecology of Animal Populations (BIO08101M)

Definition of populations. Abiotic and biotic factors, density-dependent or density-independent, direct or indirect. Sampling and monitoring methods. Life cycles and life tables. Survivorship analysis. Demographic strategies. Processes of population regulation. Intra-specific relationships: cooperation, reproduction, competition. Effects of reproductive isolation, on the genetic structure of populations. Population growth models, density-independent and density-dependent. Stochastic mechanisms. Age structure models, Leslie matrix. Inter-specific relationships. Inter-specific competition and its modeling. Predation: Prey selectivity; optimal foraging; functional and numerical responses to prey density. Predator-prey models. Parasitism and parasitoidism. Host-parasite interactions, evolution of resistance and virulence. Co-evolution. Animal population management: Sustainable harvesting; conservation and meta-population theory; pest management, management of invasive species.

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Economics and Management of Natural Resources (BIO08102)

Informação não fornecida



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Management and Conservation of Terrestrial Plant Communities and Agro-Forestry Systems (BIO08103M)

Module 1: Bioclimatic and biogeographic context of Portuguese vegetation; methods of vegetation study.

1. Bioclimatology and biogeography: history and concepts;
2. Biomes;
3. Methods of vegetation study.

Module 2: Vegetation conservation and plant mapping.

1. Plant mapping;
2. Biodiversity, vegetation management and conservation;
3. International Conventions, European Regulations, agri-environmental and forest-environment measures.

Module 3: Agroforestry systems.

1. Concepts and typologies;
2. Hydrological balance and nutrient cycling;
3. Silvopastoral systems: community rural areas as a case study.

Module 4: Restoration and rehabilitation of vegetation and plant communities.

1. Degradation factors;
2. Restoration methods; Phytoremediation;
3. Case studies (riparian galleries; wild fires; weed control; sand dunes; phytoremediation)

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Soils and Resources Conservation (BIO08104M)

The importance of soil for terrestrial ecosystems. Functions of soil on resources management. The soil as the subsystem necessary to life and environmental regulation. General processes of soil genesis and evolution. The soil, transformation of residuals and nutrient cycling (geochemical and biological nutrient cycles). Organisms and soil ecology. Soils and global changes. Mineral and organic soil constituents: nature and soil functions. Constitution and architecture of soil: retention and flux of fluids, nutrients and substances. Soil and the hydrological cycle. Use and misuse of soils, degradation. Secondary acidification and alkalinity. Soils physical degradation. Erosion and conservation measures. The soil and the chemical pollution, mineral and organic contaminants. The soil and extreme events, drought and fire. Restoration of soils and substrates.

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Spatial Analysis (PAO07372)

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Management and Conservation of Terrestrial Fauna (BIO08097M)

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Estuarine Management and Conservation (BIO08098M)



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Management and Conservation of Coastal Marine Ecosystems (BIO08099M)

Patterns of community structure, and of abundance and distribution of benthic and pelagic species of marine shores. Physical (wave exposure, tides, coastal upwelling) and biological (predation, herbivory, competition, facilitation) processes and their interaction. Primary and secondary productivity, and trophic relations. Reproduction, settlement and recruitment. Rock cycle and geological time scale. Physical and chemical characterization of detrital, clay and carbonate rocks. Morpho-dynamic processes on rocky and sandy marine shores. Geosphere-Biosphere interactions on marine shores. Human disturbances: fisheries, pollution, alterations in physical habitat, introduction of exotic species, climate change. Management and conservation of marine shores and their resources: objectives, strategies and threats. Marine protected areas: selection, designation and management.

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Ecotourism and Enhancement of Natural Resources (BIO08105M)

1. Criteria and context of ecotourism: Emergence of ecotourism; Definitions and criteria; Ecotourism and other tourism types.
2. Ecotourism consumers: Emergence of a new environmental paradigm? Ecotourists: sociodemographic criteria; motivations and activities; attitude and behaviour; Ecotourism markets.
3. Ecotourism environments and nature conservation: Public and private protected areas; and protected areas classification: IUCN and Portuguese classification; Heavily modified spaces: agricultural land, urban spaces.
4. Ecological impact of ecotourism: Positive and negative impacts; Impact management strategies; Conflict and cooperation in natural resources management
5. Economic and sociocultural impact of ecotourism: Positive and negative impacts; Community-based ecotourism; Ecotourism in the rural European context.
6. Ecotourism as a business: Structure and agents of ecotourism activities; Business planning and managing; Quality control: codes of conduct and certification.

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Management and Conservation of Inland Waters (BIO08106M)

Part I- Abiotic freshwater scenarios. Major and minor components, water quality. Thermal stratification. Flora and fauna of the freshwater environment. Organic matter and its cycling. Typology and ecology of aquatic communities in rivers and lakes, temporal and trophic variability. Ecology of freshwater fishes.

Part II- Water quality and biotic integrity of freshwater ecosystems. Eutrophication and its control in rivers and reservoirs. Regulated rivers, ecology and management. Minimal flow requirements. Fish passes and fish movements. Ecology and management of riparian woodlands. Ecology and control of invasive species. Mining and substrate extraction. Habitat restoration in mining areas. Ecology of urban rivers. Restoration of aquatic systems, rivers and reservoirs.

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Seminar (BIO08164)