



## Study Plan

**School:** Institute for Advanced Studies and Research  
**Degree:** Doctorate  
**Course:** Interdisciplinary Management of Landscape (cód. 341)

### 1st Year - 1st Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
PAO9251D	Landscape, Biodiversity and Society	Landscape, Environment and Planning	6	Semester	156
PAO9252D	Project Seminar	Landscape, Environment and Planning	6	Semester	156

### Group of Options

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
BIO7384D	Biodiversity and Conservation	Biology	5	Semester	130
ECN9799D	Sustainable Regional Development	*** TRANSLATE ME: Ciências Económicas e Sociais ***	6	Semester	156
ECN9800D	Environmental Economics	*** TRANSLATE ME: Ciências Económicas e Sociais ***	6	Semester	162
ECN9801D	Agricultural and Food Economics	*** TRANSLATE ME: Ciências Económicas e Sociais ***	6	Semester	162
BIO9802D	Conservation Priorities Assessment	Biology	6	Semester	156
ECN9803D	Food Marketing	*** TRANSLATE ME: Ciências Económicas e Sociais ***	6	Semester	162
PAO9804D	Multicriteria Decision Aid Methodologies	Geography	6	Semester	156
PAO8444D	Rural Landscape Management	Geosciences	15	Trimester	390
FIT9805D	Forest Management and Arrangement	Agricultural Sciences	6	Semester	156
ECN9806D	Natural Resource Management	*** TRANSLATE ME: Ciências Económicas e Sociais ***	6	Semester	162
ECN9807D	Ecotourism and Exploitation of Natural Resources	*** TRANSLATE ME: Ciências Económicas e Sociais ***	6	Semester	162
ECN9808D	Quantitative Methods in Socioeconomics	*** TRANSLATE ME: Ciências Económicas e Sociais ***	6	Semester	162
PAO9253D	Intensive course of specialization I	Landscape, Environment and Planning	3	Semester	78

Group of Free Options



#### 1st Year - 1st Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours

#### 1st Year - 2nd Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
	Thesis				

#### 2nd Year - 3rd Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
	Thesis				

#### 2nd Year - 4th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
	Thesis				

#### 3rd Year - 5th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
	Thesis				

#### 3rd Year - 6th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
	Thesis				

#### Conditions for obtaining the Degree:

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

1º Semestre: {\ }newline

2 UC Obrigatórias num total de 12 Ects {\ }newline

UC Optativas num total de 18 ECTS {\ }newline

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Para obtenção do grau necessita de obter aprovação na Tese num total de 150 Ects. \*\*\*

## Program Contents

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### Landscape, Biodiversity and Society (PAO9251D)

Knowledge and integrated reflection on the complementary perspectives about the structure and functioning of the mediterranean landscapes, biodiversity conservation, the modelling of natural resources and of the silvo-pastoral systems, as well as the farm and land use systems, the multifunctionality and dynamics of the rural landscapes, the evaluation of the social demand and the analysis of policies.



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### **Project Seminar (PAO9252D)**

The integration of several disciplines. From disciplinary approaches to interdisciplinarity and transdisciplinarity. Reality and the object of science. Society demands. Scientific approval and social robustness. Challenges in new productions of knowledge, and innovation in research. Goals, approach and structure of a research thesis. Potential themes for the thesis. Definition of main goals. Structure of the empyry and methods. Final evaluation of the structure and contents of the thesis proposal: objectives, methods, state of the art, bibliographic revision.

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### **Biodiversity and Conservation (BIO7384D)**

Human Population Growth and Environmental degradation  
Main Guidelines in Conservation Biology  
Ethics and conservation  
Biodiversity: losses and threatens  
Conservation: UICN conservation categories and legislation  
Active management for conservation  
Protected and classified areas  
Sustainable development  
Ecology, sociology, politics and economy  
Conservation Biologists: How to be efficient in defending conservation points of view  
Population Viability Analysis  
Global changes  
Landscape ecology and conservation  
Agriculture and conservation

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### **Sustainable Regional Development (ECN9799D)**

Models of urban sustainability. Models of the base and spatial interaction models: the base model, spatial interaction model, interaction model with the use of natural resources. Input-Output Models: models of regional input-output models, input-output interregional social accounting matrix of regional input-output models with environmental interactions. General Equilibrium Models: static models of general equilibrium, dynamic models of general equilibrium, general equilibrium models with environmental interactions.

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### **Environmental Economics (ECN9800D)**

Module I – An Introduction to Environmental Economics  
Scarcity, opportunity cost and choice. Economic functions of the environment. Pareto optimum, market failure and public intervention. Market, property rights and environmental policy.  
Module II – Pollution Economics  
Steps in defining a pollution control policy - the role of economic analysis. The optimal pollution level. Costeffectiveness. Non-additive and diffuse pollutions.  
Module III – Decision Support Tools for Environmental Management  
Cost-Benefit Analysis: the theoretic foundations and operational steps. Non-market valuation techniques: dose-response functions; replacement costs; contingent valuation; travel cost and hedonic prices. Validity, reliability and transferability of techniques and estimates.  
Module IV – Natural Resource Economics  
Inter-temporal allocation of a stock resource. Renewable and exhaustible resources: the optimal extraction path. Optimal forest turn.



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### **Agricultural and Food Economics (ECN9801D)**

1. Introduction to economics: scarcity, opportunity cost and choice; market failures and public intervention  
The agri-food Portuguese sector: structures and factors of production, economic performance
2. Production and supply of agri-food products: the production function, productivity and factor substitution; costs, efficiency and profit maximization; supply in the short and long run; characteristics of agri-food supply
3. Demand for agri-food products: utility, consumer choice and demand function; determinants of demand and characteristics of the demand for food; evolution of food consumption in Portugal
4. Markets and prices of agricultural and agri-food products: demand, supply and market equilibrium; market instability; prices in an open economy; market structures of the agri-food products
5. Food and Agriculture in a changing world: globalization and new challenges to agriculture and agri-food sector; the agricultural and rural policies in OECD countries

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### **Conservation Priorities Assessment (BIO9802D)**

- Assessment criteria for vegetation -floristics
- Wild habitats and semi-natural habitats (Natura 2000)
- Rare or endemic plants (EU-interest)
- Assessment criteria for animal/faunistics
- National and international legislation
- Conservation sinoptics (IUCN)
- Ecological and biogeographic fundamentals
- Phylogeny & taxonomy
- Social-economic values
- Assessment criteria for protected areas
- Avaliação de habitats e biótopos
- Social-economic values for urban and rural areas
- Models to select protected areas

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### **Food Marketing (ECN9803D)**

- Module I – Market orientation, competitive advantage and marketing strategy: the marketing concept and its evolution, specificities of food marketing, competitive advantage and market orientation, the marketing environment and the marketing strategy, the macro marketing environment of the European food industry, structure and organisation of food distribution, case studies.
- Module II – Consumer behaviour and market segmentation: the consumer buying decision process and its influencers, segmentation, targeting and positioning as key options of the marketing strategy, food quality perception, introduction to market research, case studies.
- Module III – The marketing mix: Product decisions, branding and packaging, pricing decisions, marketing channels and behaviour of channel members, marketing communications' decisions, case studies.



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### **Multicriteria Decision Aid Methodologies (PAO9804D)**

- a. Decision Aid Methods: importance to Nature Conservation and Environment. Relation with Landscape Planning and Management and Sustainable Development; Sustainable Development as an objective of Landscape Planning and Management
- b. Environmental Policy; Nature Conservation and Landscape Planning Strategies in European Union. Their integration in Portuguese policies.
- c. National legal framework: Environmental Law, Landscape Planning and Urban Law; NATURA network; Environmental Impact Assessment and Strategic Environmental Assessment
- d. Multicriteria Decision Aid Methodologies. Participation, Interactivity and Simplicity. Cognitive aspects of Decision processes. Multimethodology concept and practical application. Structuring: actors and actions. Evaluation. Recommendations.

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### **Rural Landscape Management (PAO8444D)**

Theories and Methods. Functions and Multifunctionality, Policies and Instruments.

The Rural territory and landscape, productivism and post-productivism, multifunctionality, commodity and non-commodity outputs, private and public goods and services. Contribution from the several disciplines and theoretical constructions, the several currents. Explanatory models. Policies and Instruments, impacts and requirements for integrative policies which make it possible to compensate for the non-commodity functions.

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### **Forest Management and Arrangement (FIT9805D)**

Typology of the main aspects in forest planning and certification of management of forest resources: Forest regional planning; Local forest management plans; Regional forest fire prevention plans; Zones of forest interventions (ZIF)

Economics and valuation of forest and natural resources: The market and the valuation of forest resources; First approach to the valuation of forest goods and product; The factor time and the importance of the income taxes on the evaluation of forest investments.

Forest planning: Decision models for forest/natural resources; Decision support systems methods (linear programming, objective planning, optimization)

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### **Natural Resource Management (ECN9806D)**

1. Introduction to ecosystem management planning. Modeling and ecological-economic decision analysis. Recent perspectives on sustainable forest ecosystem management; spatial and temporal scales.
2. Economics and project evaluation. Practical application of economic principles and concepts. Ecosystem management and conservation projects evaluation: topics and strategies. Management planning at the landscape-level and economic analysis at the local stand level.
3. Multi-objective ecosystem management planning. Strategic planning for timber production. Exact and heuristic approaches for addressing multiple ecological and economic goals. Scenario analysis; Hoganson-Rose simulation approach. Integrating risk and uncertainty in ecosystem management planning. Multiple decision makers and group decision methods.
4. Information and communication technologies (ICT) in natural resources management. Decision support systems and knowledge-based systems.
5. Seminar.



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### **Ecotourism and Exploitation of Natural Resources (ECN9807D)**

#### 1. Introduction

Notion of ecotourism

Ecotourism facts & figures

Different agendas in ecotourism

#### 2. Ecotourism and the agenda of conservationists

Ecotourism and the conservation of natural resources, ecosystems and landscapes

Market trends and growth potential for the services linked to nature tourism

The conflict between ecotourism as a market-driven economic activity and environmental sustainability

#### 3. The activities and motives of ecotourists

Activities, motivations and attitudes

Typologies of ecotourists

Environmental attitudes and behaviours of tourists

#### 4. Tourism development. Sustainable management strategies

Seizing the economic logics of ecotourism-business agents

Sustainable management strategies and techniques

Certification

#### 5. Local development and socioeconomic impacts

Natural and rural spaces in different socioeconomic contexts

New rural activities and their impact

Social impact assessment

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### **Quantitative Methods in Socioeconomics (ECN9808D)**

Module I – Multivariate analysis

An introduction to different methods.

Linear multiple regression model: specification; estimation; statistical inference; prediction.

Factor analysis of a cloud of points.

Simple correspondence analysis. Typical problems. Output interpretation. Multiple correspondence analysis.

Principal component analysis. Output interpretation.

Cluster analysis: classification concepts. Similarity measures. Hierarchical agglomerative and iterative partitioning methods.

Module II – Multi-criteria decision-making

Concepts: Attribute, objective, goal and criteria. Technical versus decisional problems. Optimal solutions and efficient frontier (condition of Pareto optimum). Trade-offs.

Multi-objective programming and goal programming. Using goal programming for building an indicator of environmental, social and economic impact.

Compromise Programming. Ideal point, distance metrics, compromise set.

Interactive programming. The displaced ideal method.

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### **Intensive course of specialization I (PAO9253D)**

(changing)