

Course Unit	Inland Fisheries Management		Field of study	Silviculture and Wildlife Management	
Master in	Management of Forest Resources		School	School of Agriculture	
Academic Year	2022/2023	Year of study	1	Level	2-1
Type	Semestral	Semester	2	ECTS credits	6.0
Code	6363-352-1203-00-22				
Workload (hours)	162	Contact hours	T 30	TP -	PL 30
			TC -	S -	E -
			OT 20	O -	

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Amílcar António Teiga Teixeira

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Learning Outcomes (1): To know the abiotic and biotic components of the freshwater ecosystems and the main typology of running waters and reservoirs systems;
2. Learning Outcomes (2): To understand the function and ecological processes and the effects of different human activities on the freshwater ecosystems;
3. Learning Outcomes (3): To apply different methodologies in habitat and fish assessments and plan the management of fishery stocks;
4. Learning Outcomes (4): To define mitigation actions and to promote the recovery of disturbed systems;
5. Learning Outcomes (5): To know the legal and administrative aspects of inland fisheries management in Portugal and the tools of fishery management
6. Competences (1): capacity to analyse physical, chemical and biological data and be able to apply different methodologies in order to mitigate disturbance effects;
7. Competences (2): to make management decisions concerning anglers activities and management needs of angling sites and fish populations.

Prerequisites

Before the course unit the learner is expected to be able to:
Knowledge about aquatic ecology

Course contents

Freshwater fish species. Habitat and Fish population assessment: Sampling techniques. Ecological management of lotic and lentic environments. Management plans used in resources conservation vs. exploitation. Recovery techniques and improvement of fish habitat. Management techniques of fish stocks and monitoring plans. Social and economical analyses and benefits. National and EU Legislation.

Course contents (extended version)

1. THEORETICAL PROGRAM
 - AQUATIC SYSTEM: Abiotic characterization. Physical and chemical water parameters
 - BIOTA: Microorganisms, plants and invertebrates. Bioecology of the fish species
 - AQUATIC ECOSYSTEMS: lotic and lentic systems. Typology and functioning
 - HABITAT ASSESSMENT: Habitat analysis; Channel and riparian zones; Hydromorphology (e. g. RHS)
 - SAMPLING TECHNIQUES: electrofishing, snorkeling, seining, telemetry; others
 - FISH POPULATION ASSESSMENT: Age and growth, Density; Mortality; Production; Reproduction; Feeding.
 - ECOSYSTEM IMPACTS: Biotic Integrity; Recovery, Mitigation River/Reservoir management/rehabilitation
 - INLAND FISHERIES: Fisheries principles. Management techniques. Plans and risk evaluations.
 - INLAND FISHERIES MANAGEMENT: Fishing activity. Legislation. Social and economic value.
2. PRACTICAL PROGRAM
 - Management of Fish populations: Field and laboratorial works based on lotic and lentic systems

Recommended reading

1. Craig J.F. (ed). (2016). Freshwater Fisheries Ecology. John Wiley & Sons Ltd, UK
2. García de Jalón, D., Mayo, M., Hervella, F., Barceló, E. & Fernandez, T. (1993). Principios y técnicas de gestión de la pesca en aguas continentales. Mundi-Prensa. Madrid.
3. Murphy, B. R. & Willis, D. W. (1996). Fisheries Techniques. American Fisheries Society. Bethesda, Maryland, USA.
4. Arizpe D., Mendes A., Rabaça J.E. (2009). Zonas Ribeirinhas Sustentáveis: Um Guia de Gestão. ISA Press
5. Francis R.A. (2017). A Handbook of Global Freshwater Invasive Species. Earthscan

Teaching and learning methods

Lessons 1) Lectures: sessions will use audiovisual media resources. laboratory classes- a) field work based on specific methodologies and material (e. g. electrofishing device). b) Laboratorial- identification, data treatment and analyses. 2) Tutorial – practical works started during lectures; Investigation and group works (seminar); library research (B-on).

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
 - Presentations - 30%
 - Work Discussion - 20%
 - Final Written Exam - 50%
2. Alternative 2 - (Regular, Student Worker) (Supplementary)
 - Final Written Exam - 100%
3. Alternative 3 - (Student Worker) (Special)
 - Final Written Exam - 100%

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

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05-12-2022	06-12-2022	06-12-2022	19-12-2022