English version at the end of this document

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| **Ano Letivo** | 2022-23 |
| **Unidade Curricular** | RIVER RESTORATION |
| **Cursos** | ECOHIDROLOGIA APLICADA - Erasmus Mundus (2.º Ciclo) (*)<br><br>(*) Curso onde a unidade curricular é opcional |
| **Unidade Orgânica** | Faculdade de Ciências e Tecnologia |
| **Código da Unidade Curricular** | 19311016 |
| **Área Científica** | CIÊNCIAS DO AMBIENTE |
| **Sigla** | |
| **Código CNAEF (3 dígitos)** | 851 |
| **Contributo para os Objetivos de Desenvolvimento Sustentável - ODS (Indicar até 3 objetivos)** | 6,13,14, |
| **Línguas de Aprendizagem** | inglês |

**Modalidade de ensino**

presencial/ remoto

**Docente Responsável** Luís Manuel Zambujal Chícharo

| DOCENTE | TIPO DE AULA | TURMAS | TOTAL HORAS DE CONTACTO (*) |
|---|---|---|---|

* Para turmas lecionadas conjuntamente, apenas é contabilizada a carga horária de uma delas.

| ANO | PERÍODO DE FUNCIONAMENTO* | HORAS DE CONTACTO | HORAS TOTAIS DE TRABALHO | ECTS |
|---|---|---|---|---|
| 2º,1º | S1 | 8T; 5TP; 8TC; 3OT | 78 | 3 |

* A-Anual;S-Semestral;Q-Quadrimestral;T-Trimestral

**Precedências**

Sem precedências

**Conhecimentos Prévios recomendados**

biology, ecology

**Objetivos de aprendizagem (conhecimentos, aptidões e competências)**

At the end of the course, the student will acquire the theoretical and practical knowledge necessary for the recovery of degraded ecosystems, as well as knowledge of European rules and regulations.

**Conteúdos programáticos**

Engineering concepts and techniques to recover the physical environment and biodiversity and to mitigate fragmentation: relationship between river erosion, hydraulic characteristics and hydromorphological processes; the role of riparian vegetation, the recovery of habitats and the stabilization of margins through natural engineering; the restoration of connectivity through ecological flows and transposition devices. Iberian and European case studies

**Metodologias de ensino (avaliação incluída)**

The subjects will be exposed in theoretical classes, trained in field classes, processed in practical cla

**Bibliografia principal**


1. CORTES, R.M.V. HUGHES, S.J.; VARANDAS, S., MAGALHÃES, M., FERREIRA, M.T., 2009. Habitat variation at different scales and biotic linkages in lotic systems: consequences for monitorization. Aquatic Ecology. Aquatic Ecology 43: 1107¿1120.

BOAVIDA, I., SANTOS, J., LOURENÇO, J., CORTES, R.M.V., FERREIRA, T. & PINHEIRO, A., 2009. Using a Two Dimensional Approach To Evaluate Channel Rehabilitation In A Mediterranean Stream (Southern Portugal. 4th European Conference on River Restoration, pgs. 749-758. Ed.

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| **Academic Year** | 2022-23 |
| **Course unit** | |
| **Courses** | Applied Ecohydrology - Erasmus Mundus (2.º Cycle) (*)<br><br>(*) Optional course unit for this course |
| **Faculty / School** | FACULTY OF SCIENCES AND TECHNOLOGY |
| **Main Scientific Area** | CIÊNCIAS DO AMBIENTE |
| **Acronym** | |
| **CNAEF code (3 digits)** | 851 |
| **Contribution to Sustainable Development Goals - SGD (Designate up to 3 objectives)** | 6,13,14 |
| **Language of instruction** | english |
| **Teaching/Learning modality** | face to face/remote |

**Coordinating teacher** Luís Manuel Zambujal Chícharo

| Teaching staff | Type | Classes | Hours (*) |
|---|---|---|---|

* For classes taught jointly, it is only accounted the workload of one.

**Contact hours**

| T | TP | PL | TC | S | E | OT | O | Total |
|---|---|---|---|---|---|---|---|---|
| 8 | 5 | 0 | 8 | 0 | 0 | 3 | 0 | 78 |

T - Theoretical; TP - Theoretical and practical ; PL - Practical and laboratorial; TC - Field Work; S - Seminar; E - Training; OT - Tutorial; O - Other

**Pre-requisites**

no pre-requisites

**Prior knowledge and skills**

biology, ecology

**The students intended learning outcomes (knowledge, skills and competences)**

At the end of the course, the student will acquire the theoretical and practical knowledge necessary for the recovery of degraded ecosystems, as well as knowledge of European rules and regulations.

**Syllabus**

Engineering concepts and techniques to recover the physical environment and biodiversity and to mitigate fragmentation: relationship between river erosion, hydraulic characteristics and hydromorphological processes; the role of riparian vegetation, the recovery of habitats and the stabilization of margins through natural engineering; the restoration of connectivity through ecological flows and transposition devices. Iberian and European case studies

**Teaching methodologies (including evaluation)**

The subjects will be exposed in theoretical classes, trained in field classes, processed in practical cla

**Main Bibliography**


1. CORTES, R.M.V. HUGHES, S.J.; VARANDAS, S., MAGALHÃES, M., FERREIRA, M.T., 2009. Habitat variation at different scales and biotic linkages in lotic systems: consequences for monitorization. Aquatic Ecology. Aquatic Ecology 43: 1107¿1120.
2. BOAVIDA, I., SANTOS, J., LOURENÇO, J., CORTES, R.M.V., FERREIRA, T. & PINHEIRO, A., 2009. Using a Two Dimensional Approach To Evaluate Channel Rehabilitation In A Mediterranean Stream (Southern Portugal. 4th European Conference on River Restoration, pgs. 749-758. Ed.