COASTAL AND MARINE BIOLOGY AND ECOLOGY (LM51)

(Lecce - Università degli Studi)

Teaching ECOLOGY AND BIOLOGY OF TRANSITIONAL WATERS

GenCod A005723

Owner professor Alberto BASSET

Teaching in italian ECOLOGY AND BIOLOGY OF TRANSITIONAL WATERS

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SSD code BIO/07

Reference course COASTAL AND MARINE BIOLOGY AND ECOLOGY

Course type Laurea Magistrale

Credits 6.0

Teaching hours Front activity hours: 52.0

For enrolled in 2020/2021

Taught in 2020/2021

Course year 1

Language ENGLISH

Curriculum Curriculum Marine Biology and Ecology

Location Lecce

Semester Second Semester

Exam type

Assessment

Course timetable https://easyroom.unisalento.it/Orario

BRIEF COURSE DESCRIPTION

The course focuses on the emergent properties of transitional water ecosystems as and ecological domain at the interface among the freshwater, marine and terrestrial ones. The course gives to the student compenences on the driving forces of TWs structural and functional components, addressing patterns and underlying mechanims of biodiversity organisation, ecosystem functioning and properties and ecosystem services in TW ecosystems.

REQUIREMENTS

foundations of animal and plant biology and microbiology, elements of physical and chemical properties of water, inorganic and organic chemistry, coastal geomorphology at the level of high school and bachelor degrees

COURSE AIMS

The course is aimed at giving to the students a solid preparation on ecology and biology of transitional waters for the achievement of an established knowledge and a deep understanding of the ecological phenomena, at all level of the ecological scales, driving the structure, organisation and functioning of transitional water ecosystems.
In order to provide these skills, the course envisages activities aimed at: acquiring deep knowledge on the biology and ecology of these ecosystems and practical, operative and adequate skills of a ecologist specialized on this ecological domain through practicals in lab, field and eScience infrastructure facilities and external activities, such as formative trainings, laboratories, and/or stages with Italian and foreign universities, also within the framework of international agreements of transnational access with European Research Infrastructures, with outstanding lab (elab) facilities for TW studies, such as Danubius-RI, eLTER and LifeWatch ERIC

TEACHING METHODOLOGY

Lectures at presence and/or distance learning and practicals in lab (BIOforIU), field (Aquatina choked lagoon) and eScience (LifeWatch) infrastructures

ASSESSMENT TYPE

Oral exam with student presentations and intermediate tests during the course

FULL SYLLABUS	Fundamentals of transitional waters: geaomorphological classification, typology and taxonomy of transitional waters; driving forces and emergent properties. NIche dimensions of transitional waters: niche theory and question-based limiting dimensions, limiting abiotic niche dimensions in TW, water salinity, temperature, oxygen concentration, nutrient contents and 'chemical species', water and sediment chemical pollutants. The biotic components of transitional waters: niche filtering and coloniser selections, species functional traits (micro-organisms, phytoplankton, macrophytes, macroinvertebrates, fish fauna), functional diversity and niche filtering (micro-organisms, phytoplankton, macrophytes, macroinvertebrates, fish fauna); TW biotic component under changing climates. Biodiversity organisation in TWs: biodiversity definition, measurements and open problems; biodiversity organisation: species coexistence and coexistence models; species distribution, taconomic composition, taxonomic richness, species diversity, trit distribution and morphofunctional diversity; decodng biodiversity organisation fron biodiversity patterns. Biodiversity conservation: biodiversity organisation mechanisms and biodiversity conservation procedures; species redundancy and scales of biodiversity conservation in transitional waters. Ecosystem functioning and services in TW: ecosystem functioning, primary productivity, decomposition processes, nutrient recycling and parsimony in TW ecosystems; ecosystem services, ecosystem service classification, ecosystem service valuation and pricing, citizen science approach to transitional water ecosystemn service valuation, ecosystem services and natural capital. Past ecosystem services of transitional waters and the Mediterranean culture.
REFERENCE TEXT BOOKS	Booklets and materials produced by the lecturer, published papers and reports