COASTAL AND MARINE BIOLOGY AND ECOLOGY (LM51)

(Lecce - Università degli Studi)

Teaching ENVIRONMENTAL PHYSIOLOGY

GenCod A002335

Owner professor Maria Giulia LIONETTO

Teaching in italian ENVIRONMENTAL PHYSIOLOGY

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SSD code BIO/09

Reference course COASTAL AND MARINE BIOLOGY AND ECOLOGY

Course type Laurea Magistrale

Credits 6.0

Teaching hours Front activity hours: 50.0

For enrolled in 2021/2022

Taught in 2022/2023

Course year 2

Language ENGLISH

Curriculum Curriculum Marine Biology and Ecology

Location Lecce

Semester First Semester

Exam type Oral

Assessment Final grade

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

BRIEF COURSE DESCRIPTION

The course analyzes the physiological responses of animals to the environmental variability. Moreover, it focuses the attention on the physiological responses to chemical pollution exposure and on their application in environmental biomonitoring

REQUIREMENTS

basic knowledge of general physiology

COURSE AIMS

The objective of the course is to provide students the basic knowledge of the environmental physiology (physiological responses to the variability of the environmental factors), and to gain a sound background in the physiological responses of animals to environmental pollutants and in their application in the ecotoxicological monitoring.

TEACHING METHODOLOGY

Lectures (5 CFU, 40h) and practicals (1 CFU, 10 h)

ASSESSMENT TYPE

The assessment is performed by oral examination. In particular, the examination consists of an oral presentation of 15 min (with a power point support) about one of arguments included in the first part of the course: omeostasis, acclimatization, osmoregulation, gas exchange, physiological responses to temperatue variations) followed by an oral test on the arguments included in the second part of the course (responses of the organisms to pollutiants).
The attribution of the final score will take into account: the level of theoretical and practical knowledge acquired (50%), the ability to apply the acquired knowledge (30%), autonomy of judgment (10%), of communication skills (10%).

FULL SYLLABUS	First part -Internal environment and external environment -Physiological responses to environmental variability. -Conformists and regulators -Homeostasis -Range of tolerance and resistance -Adaptation and acclimatization -Temperature limits for living organisms, adaptations to extreme temperatures -Heat exchanges between the organism and the external environment -Determinants of body heat -Endothermic and ectothermic organisms -Thermal homeostasis -Water exchanges between the organism and the external environment -Osmoregulation in aquatic environments. -Osmoregulation in terrestrial environments -Gas exchange between the organism and the environment -Respiration in aquatic and terrestrial environments - Homeostatic control of oxygen concentration Second part -Organisms and environmental chemical pollutants -Absorption, distribution, metabolism, accumulation, and escretion of chemical pollutants -Detoxification mechanisms -Effect of pollutants on proteins and nucleic acids -Oxidative stress and exposure to environmental chemical pollutants -Endocrine disruptors -Toxicity testing -Biomarkers and their application in environmental biomonitoring
REFERENCE TEXT BOOKS	- P. Willmer, G. Stone, I. Johnston. Environmental Physiology of Animals. Blackwell Publishing -W.C.H. Hopkin, S.P.Sibly, R.M. Peakall. Principles of Ecotoxicology. Taylor and Francis