

# 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

**Teaching** ENVIRONMENTAL PHYSIOLOGY

**SSD code** BIO/09

**Reference course** COASTAL AND MARINE BIOLOGY AND ECOLOGY

**Course type** Laurea Magistrale

**Credits** 6.0

**Teaching hours** Ore-Attività-frontale: 52.0

**For enrolled in** 2017/2018

**Taught in** 2018/2019

**Course year** 2

**Language** INGLESE

**Curriculum** PERCORSO COMUNE

**Location** Lecce

**Semester** Primo-Semestre

**Exam type** Orale

**Assessment** Voto-Finale

**Course timetable**  
<https://easyroom.unisalento.it/Orario>

### 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 esercitations (1 CFU, 12 h)

### ASSESSMENT TYPE

oral examination

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## FULL SYLLABUS

- 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
- Organisms and environmental chemical pollutants
- Absorption, distribution, metabolism, accumulation, and excretion 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

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## 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