COASTAL AND MARINE BIOLOGY AND ECOLOGY (LM51)

(Lecce - Università degli Studi)

Teaching EXPERIMENTAL DESIGN AND METHODOLOGIES FOR MARINE BIOLOGY

GenCod A005730

Owner professor SERGIO ROSSI

Reference professors for teaching
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Teaching in italian EXPERIMENTAL DESIGN AND METHODOLOGIES FOR

Teaching EXPERIMENTAL DESIGN AND METHODOLOGIES FOR MARINE

SSD code BIO/05

Reference course COASTAL AND MARINE BIOLOGY AND ECOLOGY

Course type Laurea Magistrale

Credits 6.0

Teaching hours Front activity hours: 54.0

For enrolled in 2020/2021

Taught in 2021/2022

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 will deal with the main techniques for studying the coastal marine environment through scuba diving and from the sea surface, on board of the research vessel Pelagia.
REQUIREMENTS	No requirements are foreseen to attend the course and practicals on board of the R/V PELAGIA. A diving licence is required to attend underwater SCUBA diving practicals.
COURSE AIMS	The aim is to provide both theoretical and practical basic knowledge on the techniques of studying the marine environment by means of a scientific diver or by sampling from sea surface on board of a research vessel.
TEACHING METHODOLOGY	The course will be run by theoretical lessons (3 credits, 24 hours) and practical exercises in the field (3 credits, 30 hours).

ASSESSMENT TYPE	The achievement of the credits attributed to teaching is obtained through a written test with five open-ended questions with different degrees of complexity, together with a qualitative assessment of the pratical achievements (non sufficient, sufficient, good, excellent) for each student given by the teaching staff.This will evaluate the learning outcomes acquired by the student. The analysis of answers to the written test will be carried out by direct interview with the teacher. Upon motivated request of the student, the written test is completely replaced by a full oral exam. The final grade is expressed in thirtieths, with possible praise. For each given answer, the student will get up to 6 point, depending on the level of inclusivity and the supporting arguments provided by the answer. Any answer not given will equal to 0 points. To pass the exam it is necessary to obtain a minimum score of 18 points, equal to a grade of 18/30. If the exam is insufficient, or the final score is less than 18, the written test must be repeated. Following a double failure to pass the written test (due to insufficiency or non-acceptance of the grade obtained), the exam can only be taken by interview with the teacher. The attribution of the final score will be taken into account: of 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	General: Physiological effects of immersion on humans. Diving equipment: breathing systems and the use of mixtures; protection systems and cold water diving; communication systems; transport systems; cave diving. Destructive sampling techniques: scratches, panels, sorbonne, nets, traps. Non-destructive sampling techniques: squares, transects, video and photographic surveys, visual-census. ROV (remotely operated vehicles). Underwater environmental volunteering projects. Transplant techniques. Use of sensors. Use of underwater lifting bag for marine litter removal and for displacement of heavy underwater equipments. Details: Autonomous scuba diving, basic instrumentation for underwater research. Underwater activities in the various scientific disciplines: areas and specificities. Physical and chemical oceanography: currentometry, underwater optics, water sampling. Portable control units. Criteria of accessibility and specificity in the approach to submarine habitats. Geology: topography, clinometry, morphometry, sedimentology, ripple-marks, penetrometry. Portable underwater sonars. Biology and ecology. Scientific immersion in the study of the pelagic environment and the benthos. Qualitative, quantitative, qualitative-quantitative surveys. Numerical descriptors: biomass and biovolume; abundance and density; roofing and covering; frequency. Destructive methods, non-destructive methods. Grating. Sorbona (air-lift sucking pump). Photo detection. Circumscribed and non-circumscribed visual methods: squares and transepts. Orthogonal and parallel transects. Type of parallel transects: Line Intercept Transect (LIT), Point Intercept Transect (PIT); Chain Transect (CT); Belt Transect (BT). National, EU and international regulations for scientific diving. Training and updating. Operating procedures. Technical and psychophysical requirements. Civil liability. Eligibility, insurance, certificates, dive booklets. Coordination of scientific immersion within the European Union. Notes on Legislative Decree 626/94 "Safety in the workplace". Risk assessment in scientific diving. Good practices for the safe performance of ISPRA and Environmental Agencies underwater activities Case studies: Installation of anti-jellyfish nets Monitoring colonial invertebrates: a case study with 10x10, 20x20 squares, visual collection (picking up). Posidonia: counting and measuring shoots and leaves, lepidocronology, epiphyte coverage. Definition and notes on the safety of scientific diving. Microplastic sampling with screen - sorting

REFERENCE TEXT BOOKS

Abbiati, M (ed.) (1991) Metodi di campionamento biologico subacqueo. In Lezioni del Corso Formativo per Ricercatore Scientifico Subacqueo. Pisa: International School of Scientific Diving, pp. 3–12.Google Scholar

Bianchi, CN, Pronzato, R, Cattaneo-Vietti, R, Benedetti-Cecchi, L, Morri, C, Pansini, M, Chemello, R, Milazzo, M, Fraschetti, S, Terlizzi, A, Peirano, A, Salvati, E, Benzoni, F, Calcinai, B, Cerrano, C and Bavestrello, G (2004) Hard bottoms. In Gambi, M and Dappiano, M (eds), Mediterranean marine benthos: a manual of methods for its sampling and study. Biologia Marina Meditteranea 11 (Suppl. 1), 185–215.

Hiscock, K and Hoare, R (1973) A portable suction sampler for rock epibiota. Helgolander Wiss. Meeresunters 25, 35–38.10.1007/BF01609959CrossRef | Google Scholar

Danovaro R. Biologia marina. Biodiversità e funzionamento degli ecosistemi marini. II edizione UTET

ISPRA 2010. Metodologie di studio del Plancton marino.

Gambi M.C., Dappiano M. 2004 (eds) "Mediterranean marine benthos: a manual of methods for its sampling and study" SIBM.