UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Environmental Lab

2425-2-F7502Q048-F7502Q040M

Aims

The overall aim of the course is the transfer of the theoretical knowledge acquired into practical research activities on the field aimed at monitoring and investigating different Mediterranean marine habitats and key ecosystems with a multidisciplinary approach combining the analysis of both living and dead assemblages with the assessment of abiotic parameters controlling the distribution of the organism.

In detail, the Environmental Lab aims at equipping the students with monitoring techniques of marine environments based on the analyses of the benthic invertebrate fauna and the benthic flora and their relationship with environmental parameters. The analysis will include both living and dead assemblages, in order to track the paleoenvironmental evolution of the environment.

Contents

Basic elements of sedimentology, geology and coastal geomorphology, reading of geological an habitat maps, sampling techniques for benthic communities, monitoring techniques for coastal environments, identification of benthic assemblages, analysis and processing of data on benthic assemblages.

Detailed program

Pre-field work laboratory (a 3-hour asynchronous remote laboratory activity, ¼ CFU, 3h, DI):
Refresher on the effect of the effects of the various environmental and geological parameters on benthic communities; analysis of geological and habitat maps; environmental and geological overview of the area of field activities. This activity will be followed by an e-learning text that will help the student to self-asses his knowledge and his comprehension of these contents.

Campus abroad (field activities, in person, interactive mode, 2 CFU, 24 h, DI):

1. Analysis of the study area with the help of geological and geomorphological maps; exploration of the study area with a focus on coastal sedimentary processes, coastal erosion, human activities and their effect on the environment.
2. Monitoring of the main environmental parameters (temperature; water turbidity; currents) and of the sea-floor (mapping of the habitats).
3. Preparation of the sampling protocol and sampling activities of the benthic community of selected habitats.
4. Sample preparation and preliminary analysis of the various samples.
5. Integrative sampling.
6. Preliminary analysis of the data with a focus on the relationship between benthic communities and environmental parameters.

Post-field work laboratory (3 three-hour laboratory activities, in person, interactive mode, ¾ CFU, DI):

1. Analysis of the samples and detailed taxonomic analysis of certain groups of benthic carbonate producing organisms of the benthic community.
2. Quantification of the abundance of the various groups of organisms.
3. Data analysis and data processing.

Prerequisites

Basic knowledge of geology, paleontology, sedimentology and marine geomorphology (Geobiology course is highly recommended)

Overall, regarding the field activities (Campus Abroad activities), each student must have the possibility to independently reach the Campus Abroad location and a small contribution from the students, in order to cover accommodation expenses, might be required. The attendance of the field activities is mandatory

Teaching form

One 3-hour asynchronous remote laboratory activity, interactive mode ¼ ETCS
24h of in person mandatory field activities (3 days, Campus abroad), interactive mode 2 ETCS (Attendance of field activities is mandatory)
3 three-hour in person laboratory activities, in person, interactive mode ¾ETCS

Textbook and teaching resource

Slides and self-assessment test on the e-learning page of the course

Semester

Second semester

Assessment method

The self-assessment test following the pre-field work laboratory, will be mandatory and it will contribute to the final score of the module by adding (or subtracting) up to 2 points. It will consists of twenty multiple choice question and two question that have to be answered with a synthetic answer. The questions will be related to the content of the pre-field work activity.

During field activities the student will be required to keep a notebook over which the details of the activities, of the sampling and of the sampling protocols will be noted. At the end of the field activity the notebook will be evaluated with a score from 0 to 30.

After the post-field work laboratory, the students will be divided into groups and will present their data. The presentation will be analyzed and evaluated with a score from 0 to 30.

The final mark of the exam will be based on the average of the results of the various tests.

Office hours

Upon appointment by e-mail to the professors

Sustainable Development Goals

LIFE BELOW WATER