UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

# Introduction To Ocean Geography

**2425-3-E3401Q053**

## Aims

To acquire the knowledge of the main biotic and abiotic components in marine systems; acquire an adequate skill in the reading of bathymetric and bathymorphological maps and the knowledge of key research methods for marine geology and submarine geomorphology

## Contents

Introduction to the marine environment in its various components.

Main physical, chemical and biological characteristics of water masses; techniques of observation, measurement and sampling of water masses.

Marine sediments: nature, composition and origin of terrigenous, volcanoclastic, neritic, pelagic, hydrothermal and authigenic sediments.

The seafloor: physiography, geomorphology and processes: analysis and sampling techniques.

## Detailed program

Physical, chemical and biological characteristics of the water masses: insolation, temperature, salinity, density, horizontal and vertical circulation, waves, tides, dissolved gases (O2 and CO2), nutrients, primary production. Organic matter in the marine environment and the C cycle. Measuring and sampling the water column and assessing biogeochemical fluxes (CTDs, rosettes with sampling bottles, sediment traps).

Nature and origin of marine sediments: lithogenic, volcanogenic, neritic, pelagic, hydrotemal, authigenic sediments.

Seafloor sampling techniques: grabs, box-corers, multi-corers, gravity and piston corers; ocean drilling for scientific research.

Geology and oceanographyc explorations. Fundamentals of submarine geomorphology. Marine physiographic provinces and their large morpho-structural units. Continental margins and ocean basins. Drivers of seafloor and coastal geomorphic changes.

Technologies of observation and sampling of the marine system. Ship positioning and navigation. Acoustic seafloor mapping.

Bases of paleoceanography

## Prerequisites

All exams of the first year and the foreign language proficiency test

## Teaching form

24 two-hour Lectures in person, Delivered Didactics (6 ETCS, 48 hours)

## Textbook and teaching resource

Recommended text: Trujillo and Thurman, 2011. Essentials of Oceanography. 10th Edition. Prentice Hall

Slides of lessons provided by the teacher on e-learning

## Semester

second semester

## Assessment method

Four self-assessment tests (multiple choice and true/false quiz) on the different themes explained in classes, to be done on e-learning. The tests will be available throughout the semester and must be passed with a minumum grade of 24 at least one day before the oral examination. Students are not allowed to proceed to the oral examination without successfully completing the self-assessment tests. The tests are constructed to assess the theoretical knowledge acquired by the students and can be used by the students to rehearse for the oral exam: the system will keep only the highest grade obtained by the students in multiple attempts.

Oral examination: 2 open questions related to the themes explained during classes. During the oral exam, the teachers will evaluate the acquired knowledge and the acquired capacities in terms of appropriate language and mastery of the themes.

## Office hours

Any time, upon request by e-mail followed by confirmation by the professor

## Sustainable Development Goals

AFFORDABLE AND CLEAN ENERGY | LIFE BELOW WATER