UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Earth Physics

2425-3-E3201Q091

Aims

To provide basic information on the Earth Physic and the main geophysical prospection techniques.

In particular, the course of Geophyisics aims to provide knowledge of quantitative methods for studying solid Earth and propose practical and applied skills for the use of field instruments and laboratory software.

Contents

This course develops students' knowledge of the basic solid earth physics and introduce to the different geophysical methods applied to the environmental sciences. Both, lectures, field survey and lab. exercise will constitute the course.

The course includes classical topics in Earth Physics aimed at understanding the planet (e.g. gravimetric and magnetic fields and also proposes applied geophysics topics, with particular attention to the use of field instruments and the resolution of specific problems (e.g. identification of buried structures by georadar)

Detailed program

The course deals with aspects related to the use of geophysical methods for the characterization of shallow subsurface structure:

- Gravity and the figure of the Earth.

- Geomagetism and magnetic surveying.

- Thermal properties of the Earth.

- Seismology and reflection and refraction methods.

  - Geoelectrical survey.- The ground penetrating radar method.

- GPS introduction.

  - Remote sensing and field spectroscopy.

Prerequisites

There are no prerequisites. It is recommended to acquire priority skills relating to compulsory courses of the first year (Physics and Mathematics).

Teaching form

Lessons, 4 credits

Laboratory, 3 credits

Field activities, 1 credit

Textbook and teaching resource

Santarato Giovanni , Nasser Abu Zeid, Samuel Bignardi (2015). Lezioni di geofisica applicata, libreriauniversitaria.it

Lecture notes and video by the teacher;

Lowrie W. (2007). Fundamentals of Geophysics, Cambridge University Press;

Norinelli A. (1982). Elementi di Geofisica applicata" Patron, Bologna;

Cassinis R. (1989). Dispensa di fisica terrestre.

Semester

First semester

Assessment method

Written examination on the topics depicted in the course

The oral examination is optional

Mark range 18-30/30

The written test consists of 6 multiple choice questions (three/four answers) with the obligation to provide a brief motivation and in 3 open-ended questions. Open-ended questions may contain a small problem to solve. The time to complete the examination is set at 120 '.

Office hours

appointment by email to roberto.colombo@unimib.it

Sustainable Development Goals

CLIMATE ACTION