



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Earth Physics

2122-3-E3201Q091

---

#### Aims

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

In particular, the course of Geophysics 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.
- Geomagnetism 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, 5 credits

Laboratory, 2 credits

Field activities, 1 credit

### **Textbook and teaching resource**

Santarato Giovanni , Nasser Abu Zeid, Samuel Bignardi (2015). Lezioni di geofisica applicata, [libreriauniversitaria.it](http://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 and oral examination

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](mailto:roberto.colombo@unimib.it)

---