UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

## Physical Geography and Geographic Information Systems

**2324-2-E3201Q090**

### Aims

Course part I - PHYSICAL GEOGRAPHY

Knowledge of the main physical processes environmental agents on earth.

Course part II - GEOGRAPHIC INFORMATION SYSTEMS

The aim of this course is to give a basic knowledge of the Geographic information system.

### Contents

Course part I - PHYSICAL GEOGRAPHY

The exogenous processes that affect and shape the earth’s surface.

Course part II - GEOGRAPHIC INFORMATION SYSTEMS

The course regards the principles of Geomatic and in particular application of Geographic Information Systems to environmental geology

### Detailed program

Course part I - PHYSICAL GEOGRAPHY

Systems and systemic approach to the processes

The global systems: Lithosphere; crustal systems and geochemical model, hexogen processes. Hydrosphere, water in the earth system, oceans. Open environmantal systems: fluvial systems (plains and relief), slope systems and mass movements, glacial and periglacial systems. Principles of geological hazard.

Course part II - GEOGRAPHIC INFORMATION SYSTEMS

General Objectives

The course aims to provide students with the main knowledge base and methodology underlying the GIS databases. Jointly presenting the main fields of application in environmental and land.

Contents of lectures

Definition of SIT, illustrations of the application in the fields of environmental and land. Elements of basic cartography; characterization of geographic information. Definition of spatial data models. Mode of representation of spatial data through computer systems. Hardware and software architecture and presentation of the main features of a GIS. Definition of database, model database, relationships between databases and GIS. Method of gathering data, creating spatial data base. Classification and main applications of the analytical capabilities of a GIS and GIS mapping ratio, mode of production and representation of thematic maps. Basic concepts and definition of data quality, metadata definition and functionality.

Contents of the workshops / tutorials with practical exercises using industry-leading commercial software applications with on case studies.

## Prerequisites

Course part I - PHYSICAL GEOGRAPHY

Basic Earth Sciences, Physics and Chemistry

Course part II - GEOGRAPHIC INFORMATION SYSTEMS

Physical geography

## Teaching form

Lessons, 5 + 4 credits

- Laboratory experiences, 1 + 2 credits

## Textbook and teaching resource

See single module

## Semester

first

## Assessment method

**Examination type:**

See single module

## Office hours

See single module

## Sustainable Development Goals

QUALITY EDUCATION