



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Physical Geography and Geographic Information Systems

2122-2-E3201Q090

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#### 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

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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 environmental 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:**

- Write and Oral examination

### **Mark range:**

18-30/30

## **Office hours**

See single module

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