UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Geo-Environmental Thematic Mapping

2324-3-E3201Q111

Aims

Producing thematic maps of environmental variables, from the collection of basic documents to the planning and implementation of sampling, including analytical determinations on collected samples and concluding with thematic map realization: data processing and spatialisation.
The course will provide students with
• practical skills in mapping environmental variables;
• ability to express considerations on the validity and applicative significance of the produced maps.

Contents

• Basic information on the main cartographic methods.
• Collection and preparation of documents (existing cartography and digital terrain model) concerning the study area.
• Preparation of a sampling plan.
• Soil sampling and point georeferencing.
• Preparation of soil samples and laboratory analyses.
• Processing of the collected data and preparation of thematic maps.

Detailed program

Lectures
• Introduction to the main methods of environmental variables mapping.
• Collection of existing thematic cartography (geology, geomorphology, land use and land cover, vegetation, soils, etc.) and digital terrain model.

• Preparation of a soil sampling plan, identification of sampling methods (evaluation of different approaches) and choice of parameters to be studied.
Field activities
Field trips for:
• evaluation of soil-landscape relationships;
• point sampling and georeferencing.

Chemical and physical analyses
Main laboratory determinations: soil sample preparation and laboratory determinations of significant parameters (pH/water content/bulk density/granulometry/organic matter/...).

Computer laboratory
• Production of thematic maps using at least two different approaches (landscape, statistical, geostatistical, geomorphometric).
• Discussion of methods employed and results obtained; reflections on the reliability of the map and its practical significance; evaluation of the application of the same methods for other situations and other environmental parameters.

Prerequisites

• Knowledge of inorganic chemistry, lithology, mineralogy and geomorphology will be considered already acquired.

Teaching form

• Lectures (2 CFU, 16 hours; GEO/04)
• Field trips (1.5 CFU, 15 hrs; AGR/14)
• Physical and chemical analysis laboratory practice (1 CFU, 10 hrs; AGR/14)
• Computer laboratory practice (1.5 CFU, 15 hours; AGR/14)

Textbook and teaching resource

• Slides projected during lectures: made available on the e-learning site.
• Information material for field activities: made available on the e-learning site.

Semester

Second semester

Assessment method

The oral examination includes questions on the topics discussed in the course, the procedures used to produce the thematic maps as well as a critical discussion on the obtained maps and the illustrative notes edited to complete them.

Office hours

By appointment

Sustainable Development Goals

ZERO HUNGER | CLIMATE ACTION