



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Cartografia Tematica Geoambientale

2627-3-E3201Q111

Aims

- Ability to produce thematic maps of environmental variables by going through all operational phases: from the collection of base documents to the planning and implementation of sampling and analytical determinations, up to the production of the thematic map through data processing and spatialization.
- Ability to select the most appropriate method to achieve the objectives and to formulate considerations on the reliability and practical significance of the maps produced.
- Ability to write comprehensive reports on analyses carried out in the laboratory or in the field, justifying the choice of the methods used.

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.
- 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 of environmental variables using at least two different methods chosen from a landscape-based approach, a geostatistical approach, and machine learning methods that use geomorphometric variables as predictors.
- 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

- 4 two-hour lectures, in person, delivered didactically
- 4 two-hour lectures, in person, delivered didactically and interactive teaching
- 3 two-hour computer lab activities, in person, interactive teaching
- 3 three-hour computer lab activities, in person, interactive teaching
- 1 four-hour chemical lab activities, in person, interactive teaching
- 3 two-hour chemical lab activities, in person, interactive teaching
- 3 five-hour field activities, in person, interactive teaching

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
