



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Laboratorio di Analisi della Diversità Vegetale

2627-3-E3201Q115

Aims

The course provides the basic knowledge of systematics in relation to plant biodiversity. The main objective of the course is the knowledge of the main taxonomic groups (especially at the level of families) of the flora of Italy and of the world, their morphological, functional and distributional characters. The tools for the identification of the species of the flora of Italy will also be provided using digital and traditional floras; floristic investigation by means of field trips will be also performed.

In particular, the following specific objectives are expected to be achieved:

Knowledge and understanding. Upon completion of the course, students will be expected to know: the morphological, functional, and biological characteristics of the main taxonomic groups of Italian and world flora; the theoretical methods of taxonomic study (classifying, describing, and identifying); the ecological and historical factors influencing the evolution and geographic distribution of plant species.

Applying knowledge and understanding. Students must be able to apply theoretical knowledge to identify species of the Italian flora using printed and digital floras. Furthermore, by the end of the course, students must know how to conduct a field floristic survey and apply the techniques for collecting and preparing herbarium specimens.

Making judgements. Students must be able to evaluate the diagnostic features of a plant specimen for its correct taxonomic classification and choose the identification tool best suited to the context.

Communication skills. By the end of the course, students will be able to describe the characteristics of plant biodiversity and floristic survey methods using the appropriate specific botanical terminology.

Learning skills. By the end of the course, students will be able to independently consult floras, dichotomous keys, and digital databases to update their knowledge and identify plant species not covered during lectures.

Contents

In the course the topics of plant diversity will be addressed. Knowledge will be provided on the morphological, functional and distributional characters that characterise the different taxonomic groups present in the plant

kingdom and that allow the identification of species. In particular, species belonging to the groups of Pteridophytes, Gymnosperms and Angiosperms will be considered.

Detailed program

Lectures

- Introduction to the contents of the workshop: historical background, role of systematics in the conservation of biodiversity,
- Concept of plant biodiversity;
- Concept of species;
- The rules of botanical nomenclature;
- Evolution and diversity of vascular plants Phylogenetic tree of the main groups and distinctive characters.

Laboratory activities

Morphological characters of the main families of Pteridophytes and Spermatophytes for their identification using dichotomous keys;

Identification of plant species using digital and traditional dichotomous keys;

Generalities on the following groups:

- Pteridophytes
 - Gymnospermae
 - Asteraceae
 - Fabaceae
 - Poaceae
 - Rosaceae
 - Brassicaceae
 - Caryophyllaceae
 - Lamiaceae;
 - Ranunculaceae
 - Apiaceae
- Statistical analysis of floristic and vegetational data.
Herbarium and preparation of herbarium specimens.

Field activities

Collection and identification of plant species in the field (15h)

Prerequisites

Knowledge of the topics presented in the General Botany and Ecology courses is necessary for the conscious acquisition of the topics covered

Teaching form

- 6 two-hour lectures, in person, Delivered Didactics
- 6 three-hour lab activities, in person, Interactive Teaching

- 6 two-hour lab activities, in person, Interactive Teaching
- 2 seven and half-hour field activities, in person, Interactive Teaching

Textbook and teaching resource

Handouts provided by the teacher

Recommended textbooks

Judd, W.S., Campbell C.S., Kellogg E.A, Stevens, P.F., Donoghue M.J. (2019) *Botanica Sistemica - Un approccio filogenetico*; Piccin Editore

Simpson M.G. (2019) *Plant Systematics*, 3rd edition; Academic Press

Semester

Second semester

Assessment method

Oral examination with a discussion of the topics covered during the three section of the teaching: a) lectures, b) laboratory (plant identification) and c) field excursion. Preparation of a herbarium (to be prepared during the course and before the exam) with 25 plant species of the main families treated during the course, to be presented on the day of the exam; the herbarium will be the subject of discussions regarding the families treated during the laboratories.

In particular, the oral test aims to assess the student's ability to use the plant identification tools and recognise the main characters of the families of the Italian flora

Office hours

By appointment by sending an email to rodolfo.gentili@unimib.it

Sustainable Development Goals

SUSTAINABLE CITIES AND COMMUNITIES
