UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Plant Systematic

2627-3-E1301Q060

Aims

knowledge and understanding: To provide the scientific basis for understanding the biological diversity of plants through the study of the fundamental evolutionary stages of the plant world. To acquire taxonomic knowledge and skills on the main families of Gymnosperm and Angiosperms.
Applied knowledge and understanding: the course will allow the student to recognize the main families of superior plants and to carry out an assessment of biodiversity.
Making judgments: Collect and interpret the relevant data on the structure and function of the different plant families. Understanding the mechanisms underlying the evolution of plant.
Communication skills: the course aims to provide students with the skills to communicate effectively, appropriately and with specific language, the concepts learned during the course.
Learning skills: at the end of the course the student will have to be able to deepen independently the topics covered in the course, also by consulting websites, specific bibliography texts and dichotomous keys.

Contents

Plant evolution and diversification

Detailed program

What are the principles of systematic botany. Phenetics and Cladistica. Algae: characteristics and structures. Microalgae and macroalgae. The evolution of plant from the waters to the land. Bryophytes: hepatic, anthocerote and moss. Spongy tracheophytes: licopodiofite, psilotophytes, equisetophytes and ferns. Leptosporangiate and Eusporangiate Ferns. The evolution of gymnosperms: morphological characteristics and diffusion. The Coniferophyta and their distribution. Gnetophyta: peculiar characteristics and their phylogenetic position. The

Angiosperms. The flower, the fruit and the seed. The evolution of the angiosperms from Paleoerbe to the Eudicotyledons. The main families of angiosperms and the evolution of the flower.

Prerequisites

General Botany

Teaching form

The course consists of 42 hours of face-to-face teaching, delivered over 21 two-hour sessions, structured as follows:

approximately three-fifths of the sessions will be delivered through direct teaching (DE), focusing on the presentation and explanation of content, concepts, and scientific principles. These sessions will also include moments of interactive teaching, such as spontaneous questions addressed to participants and opportunities for clarification;
approximately two-fifths of the sessions will be conducted through interactive teaching (DI), including complementary learning activities such as practical application examples, analysis of representative case studies, guided class discussions, educational videos, and dedicated seminars;
1–2 sessions will consist of field visits and experiential learning activities in parks and green areas;
2–3 sessions will be delivered remotely in asynchronous mode.

Textbook and teaching resource

Diapos showed at lessons are available on the e-learning platform.

Suggested books:

- Judd, Campbell, Kellogg, Stevens. Botanica Sistematica - Un approccio filogenetico. Piccin.

- Raven P.H., Evert R.F., Eichorn. S.E. Biologia delle Piante. Zanichelli ed.

- Strasburger. Trattato di botanica per le università. Volume 2. Evoluzione Sistematica ed ecologia

Semester

Second semester

Assessment method

The oral exam will evaluate the student's knowledge about the plant systematic and the plant evolution starting from algae to Angiosperm.
There are no ongoing or intermediate tests during the course.
The exam consists of 3-4 questions. The first is an open question on a general topic of the course to evaluate the study method. The second questions is directed to evaluate the ability of student to have learned the role of specific plant structures/functions during the main keys point of evolution, The last two questions are dedicated to plant systematic and the description of characteristic of the most important plant families - orders.
Evaluation criteria: scientific and technical knowledge about plant systematic and in the critical re-elaboration of the acquired knowledge as well as the scientific language usage.

Office hours

On appointment; mail to: massimo.labra@unimib.it

Sustainable Development Goals

SUSTAINABLE CITIES AND COMMUNITIES | CLIMATE ACTION | LIFE ON LAND