



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Biodiversità Vegetale

2627-1-F0602Q105

Aims

This course will focus on the main woody plant taxa (mostly trees and shrubs) occurring in anthropogenic and natural environments which contribute enhancing the overall biological diversity of these ecosystems. By the end of the term, students will be able to:

1. Identify the main tree and shrub taxa occurring in Italy, including understanding on their functioning in relation to the environment and their distribution in relation to phytoclimatic and life vegetation zones.
2. Apply the learned concepts to other courses or toward work in the field of plant biology and environmental sciences.
3. Critically consider the implications of using different plant species for urban and natural forestry to meet current and future human needs.
4. Communicate their understanding of the presented topics using accurate scientific language and technical terminology.

Contents

Morphology, reproduction, chorology (spatial distribution), ecology, identification of the main tree and shrub species occurring in Italy in natural and anthropogenic environments.

Detailed program

I- Introduction

Plant architecture: trees and shrubs. Growth patterns in woody plant species. Branching models. Root system architecture. Seed germination strategies. Forest vegetation. Flora and vegetation concept. Phytoclimatic and life

vegetation zones. Chorology and plant distribution. Ecological traits of different vegetation zones in Italy (mediterranean, temperate and alpine).

II- Plant species

Morphology, ecology, chorology taxonomy and main uses of the following taxa:

Gymnosperm

Pinaceae: general description; genus *Pinus*: (*P. cembra*, *P. mugo*, *P. uncinata*, *P. sylvestris*, *P. nigra*, *P. heldreichii*); introduced pine species: (*P. strobus*, *P. wallichiana*); genus *Picea* (*P. abies*); genus *Larix* (*L. decidua*); genus *Pseudotsuga* (*P. menziesii*); genus *Abies* (*A. alba*); mediterranean firs (general description); genus *Cedrus* (*C. atlantica*, *C. libani*, *C. deodara*). Araucariaceae: hints. Cupressaceae: genus *Cupressus* (*C. sempervirens*, *C. arizonica* e *C. macrocarpa*); genus *Juniperus*; other Cupressaceae: genus *Chamaecyparis*, genus *Thuja*, genus *Calocedrus*(hints); subfamily Sequoioideae (hints) "Ex Taxodiaceae": genus *Sequoia*, genus *Metasequoia*, genus *Sequoiadendron*. Taxodioideae: genus *Taxodium*, genus *Cryptomeria*. Taxaceae: *Taxus baccata*.

Angiosperm

Arecaceae: genus *Chamaerops* (hints). Magnoliaceae: genus *Magnolia* and *Liriodendron*. Altingiaceae: *Lyliquidambar styraciflua*. Platanaceae: genus *Platanus* (*P. occidentalis*, *P. orientalis*, *P. acerifolia*). Juglandaceae: genus *Juglans* (*J. regia*, *J. nigra*). Fagaceae: genus *Fagus* (*F. sylvatica*); genus *Castanea* (*C. sativa*); genus *Quercus*: Sez. *Quercus*: (*Q. robur*, *Q. petraea*, *Q. pubescens*), Sez. *Cerris*: (*Q. cerris*, *Q. suber*). Sez. *Ilex* (*Q. ilex*): introduced oaks: *Q. rubra*. Betulaceae: Betuloideae: genus *Betula* (*B. alba*, *B. pubescens*); genus *Alnus* (*A. glutinosa*, *A. cordata*, *A. incana*, *A. alnobetula*); Coryloideae: genus *Corylus* (*C. avellana*), genus *Carpinus* (*C. betulus*), genus *Ostrya* (*O. carpinifolia*). Salicaceae: genus *Salix* (*S. alba*, *S. capraea*); genus *Populus* (*P. alba*, *P. tremula*, *P. x canescens*, *P. nigra*, *P. deltoides* e pioppi ibridi). Malvaceae: genus *Tilia* (*T. cordata*, *T. platyphyllos*, *T. x vulgaris*). Ulmaceae: genere *Ulmus* (*U. minor*, *U. glabra*); hints on *U. laevis*, *U. procera*, *U. x hollandica*. Hints on *Zelkova*. Cannabaceae: genus *Celtis* (*C. australis*). Rosaceae: Prunoideae: genus *Prunus* (*P. avium*). Maloideae: genus *Sorbus* (*S. domestica*, *S. aucuparia*, *S. aria*, *S. torminalis*). Crataegus hints. Fabaceae. Mimosoideae: hints on *Acacia* e *Albizia*. Cesalpinioidae: hints on *Ceratonia*, *Gleditsia*, *Cercis*. Faboideae: hints on *Robinia*, *Sophora*, *Laburnum*; *Spartium*, *Cytisus*. Sapindaceae: genus *Acer* (*A. pseudoplatanus*, *A. opalus*, *A. monspessulanum*, *A. platanoides*, *A. campestre*, *A. cappadocicum* subsp. *lobelii*); genus *Aesculus* (*A. hippocastanum*). Simaroubaceae: *Ailanthus altissima*. Oleaceae: genere *Fraxinus* (*F. excelsior*, *F. angustifolia*, *F. ornus*). Myrtaceae: genus *Eucalyptus* (*E. globulus*, *E. camaldulensis*).

Prerequisites

Botany

Teaching form

Lecture (6 credits). Lectures will be held in Italian language in person (no streaming). Registrations will be made available for the students only for lectures held in the classroom.

17 lectures will be held in person;

2 lectures will be in person training activities;

2 lab activity will consist in field trips aimed at plant identification;

Textbook and teaching resource

Grossoni P., Bruschi P., Bussotti F., Selvi F.– Trattato di Botanica forestale. 1. Parte Generale e Gimnosperme. CEDAM Scienze Naturali Wolters Kluwer. Milano (2018).

Grossoni P., Bruschi P., Bussotti F., Pollastrini M., Selvi F., Trattato di Botanica forestale. 2. Angiosperme. CEDAM Scienze Naturali Wolters Kluwer. Milano (2020).

Reading material provided by the teacher (ppt slides in Italian)

Semester

Second semester

Assessment method

Students will be first asked by the instructor to identify plant species on real samples through anatomical characteristics of leaf, twig and branchlet using keys. Subsequently they will be assessed on their knowledge on morphology, ecology, chorology taxonomy and main uses of taxa described in the course. No intermediate evaluation is foreseen. The accurate use of scientific language to explain the topics and the ability to relate them will also be evaluated. Intermediate assessment will not be performed.

Office hours

By appointment

Sustainable Development Goals

CLIMATE ACTION
