. - General Arboriculture

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***Text under revision. Not yet approved by academic staff.***

COURSE AIMS AND INTENDED LEARNING OUTCOMES

The course aims to provide the basic and applicative elements of managing an arboreal plant.

Knowledge and understanding

At the end of the course, students will be able to:

Describe the organography and morphology of the arboreal plant;

Understand the physiological basis of the annual and multi-year cycle of arboreal plants;

Describe the flower's biology and the fruit's growth dynamics.

Ability to apply knowledge and understanding

At the end of the course, students will be able to:

apply the different techniques of gamic and agamic propagation;

apply management techniques in the most appropriate way for the specific characteristics of the arboretum.

Autonomous judging skills

Faced with a specific problem, students will be able to independently analyse the factors that can guide their technical choices, and independently assess the measures to be taken in specific situations.

Communication skills

Students will be able to successfully communicate, both in oral and written form, a correct understanding of the different topics and explain an appropriate critical discussion, using correct and appropriate technical language.

Ability to learn

Students will be able to modify their actions according to the specific elements to be considered when planning a technical action and know how to self-evaluate the consequences.

COURSE CONTENT

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|  | ECTS |
| Organography and morphology of tree species |  |
| Description and functions of the root system; genetic, pedological and cultural factors that influence its development. | 0.5 |
| Structure of the foliage: stem, boughs, branches, leaf system. | 0.5 |
| Physiological aspects of the annual and multi-year cycles of the tree |  |
| Bud dormancy. Cold and vegetative awakening needs. Bud cycle and factors that influence its differentiation. | 1.0 |
| Floral biology, fruit growth and maturation |  |
| Pollination, fertilisation, sterility (morphological, cytological, factorial), interventions and practices for guaranteeing the best pollination. Fruit set, parthenocarpy and drops. Fruit growth and maturation; maturation indices.  | 1.0 |
| Propagation and planting of the arboretum |  |
| Agamic and graft propagation. Plant choices related to climate and variety. | 1.0 |
| Arboretum management |  |
| Notes on soil management, irrigation and fertilisation. Forms of farming and pruning. Harvesting methods. | 1.0 |
| Tutorials |  |
| Practical tutorials and visits | 1.0 |

READING LIST

E. Baldini, *Arboricoltura generale,* Ed. Clueb, 1986.

AA.VV., *Arboricoltura generale*, Patron Editore, 2012.

R. VALLI, C. CORRADI, *Coltivazioni arboree*, Edagricole, 2005.

Lecture notes.

TEACHING METHOD

The teaching method will include the following activities:

1) frontal lectures in which the main course topics will be addressed, together with various applied examples. The teaching strategy aims to achieve a high degree of interaction between the lecturer and the students in order to stimulate discussion and break through any barriers of shyness.

2) Practical activities and internal or external (i.e. in the field) tutorials aimed at understanding the morphological differences between species.

3) Field visits within the country for a better appreciation of common problems in tree species.

ASSESSMENT METHOD AND CRITERIA

Final oral exam. Three main questions will be posed during the exam, which will give rise to a discussion on more specific concepts. Each of these questions carries a mark of 10/30. The mark is assigned on the basis of the following criteria: a) objective knowledge of the topics and mastery of the subjects (5 marks); b) clarity of presentation (2 marks); c) ability to respond exhaustively to questions linking different topics (3 marks).

The first question covers the topics of organography and morphology.

The second question covers the description of specific biological and physiological processes of the arboreal plant.

The third question covers the design of an arboretum or nursery, or the development of cultivation techniques in the face of specific limiting factors.

NOTES AND PREREQUISITES

Students must possess a basic knowledge of botany, biochemistry, plant physiology and mathematics.

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=Eng or on the Faculty notice board.