

COURSE OF STUDY *Master Degree in Plant Medicine (LM-69)*
ACADEMIC YEAR 2023-2024

ACADEMIC SUBJECT *Fruit crops (integrated course: Plant production)*

General information	
Year of the course	First
Academic calendar (starting and ending date)	First semester (September 25 th 2023 - January 19 th , 2024)
Credits (CFU/ETCS):	6
SSD	Tree crops (AGR/03)
Language	Italian
Mode of attendance	No compulsory but suggested

Professor/Lecturer	
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Department and address	DISSPA-Fruit tree unit 5 th floor
Virtual room	Microsoft Teams: code <i>mb10c01</i>
Office hours (and modalities: e.g., by appointment, on line, etc.)	Every day from 8.30 to 13.30 pm according to a scheduled appointment. Tutoring could be also done on online platforms (Teams).

Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
150	32	28	90
CFU/ETCS			
6	4	2	

Learning Objectives	At the end of the course the students will acquire the basic knowledge about the cultivation and use of fruit tree species in the Mediterranean basin. The main objectives will be: morphology, physiology, cultural practices, varieties, harvesting and post-harvesting.
Course prerequisites	Knowledge of fruit tree science.

Teaching strategies	The topics of the course will be presented with Power Point presentations, videos, classroom or laboratory/field activities, case studies, webinars, workshops. The e-learning modality can be used in some situations (disabled students, foreigners, workers, athletes, etc.) using online platforms such as Teams.
Expected learning outcomes in terms of	

<p>Knowledge and understanding on:</p>	<ul style="list-style-type: none"> • Knowledge of the origin and spread of Mediterranean fruit tree species. • Ability to understand the pedo-climatic requirements of the different species/varieties/rootstocks. • Basic knowledge of cultivation techniques applied to different fruit tree species. • Knowledge of harvesting, use of the product and nutritional characteristics of the different fruit tree species.
<p>Applying knowledge and understanding on:</p>	<ul style="list-style-type: none"> • Ability to understand the specific needs of the different fruit tree species and evaluate them for the different environments and uses by using available data (scientific texts, experimental trials, etc.). • Ability to know and apply the cultural practices (rootstocks, variety choice, trellising, etc.) for the various fruit tree species. • Ability to evaluate the different possible uses of the product to optimize the productive and economic aspects.
<p>Soft skills</p>	<ul style="list-style-type: none"> • Making informed judgments and choices: <ul style="list-style-type: none"> ○ Ability to correctly suggest the species/varieties/rootstocks in the different pedo-climatic conditions. ○ Ability to technically evaluate the use of the cultural practices for the different fruit tree species with also the support of modern technologies (agriculture 4.0). ○ Ability to apply the appropriate cultivation techniques in conditions of climatic changes. • Communicating knowledge and understanding: <ul style="list-style-type: none"> ○ Expose the acquired skills with a language appropriate to the discipline. ○ Ability to organize the acquired knowledge in the form of a presentation for different purposes. • Capacities to continue learning: <ul style="list-style-type: none"> ○ Ability to deepen and update the acquired knowledge on fruit tree species, even of recent and new introduction in the cultivation area. ○ Ability to extend the knowledge acquired during the course through the reading and understanding of scientific and technical texts, webinar, workshops, technical meetings, etc.
<p>Syllabus</p>	
<p>Content knowledge</p>	<p>The course aims to provide knowledge on the cultivation of fruit tree species typical of a Mediterranean climate, with particular regard to: origin, importance and diffusion in the world, systematic classification, botanical characteristics, pedo-climatic requirements, propagation and rootstocks, physiology of fruiting, varietal choices, planting, trellising and pruning, soil management, irrigation (application of sensors), nutrition, ripening, harvesting, product destination, fruit storage and nutritional aspects. Knowledge will be provided on the use of new technologies (smart technologies) towards a 4.0 management of the orchard/vineyard.</p> <p>The main species of the Mediterranean area will be treated (vine, olive, almond, apricot, cherry, peach, plum, citrus, apple, pear) and some of those considered 'minor' among the ones here listed: quince, pecan, pistachio, kiwi, fig, pomegranate, carob, mulberry, persimmon, loquat, walnut, hazel, sorb, medlar, cornelian cherry, azarole.</p>
<p>Texts and readings</p>	<ul style="list-style-type: none"> ✓ Appunti dalle lezioni e materiale didattico distribuito durante il corso. ✓ AAVV - Arboricoltura speciale. A cura di A. Gentile, P. Inglese, M. Tagliavini. Edagricole. 2022. ✓ AAVV – Frutticoltura speciale. Reda (1991). ✓ Boselli, M., et al. – Progressi in Viticoltura. Edises (2016). ✓ Collana Colture & Cultura, Bayer Crop Science

	(http://www.colturaecultura.it/download). <ul style="list-style-type: none"> ✓ Liste varietali (http://plantgest.imaginenetwork.com/liste-varietali.cfm). ✓ Norman F. Childers, Modern Fruit Science. Horticultural Publications, 1995.
Notes, additional materials	<ul style="list-style-type: none"> • Scientific papers to improve the acquired skills.
Repository	All teaching material will be available to students on web platforms (class Teams code <i>mb10c01</i>).

Assessment	
Assessment methods	<p>For students enrolled in the year of the course in which the teaching is carried out, a mid-term test is required. The mid-term test consists of an oral test on the topics developed during the lesson hours in the classroom and in the laboratory/field. The mid-term test will be assessed out of thirty and in the event of a positive outcome, in the subsequent oral test (second part) the exam will focus on the topics developed during the lesson hours in the classroom and in the laboratory/field until the end of the course. The outcome of this test contributes to the evaluation of the final exam and is valid for one academic year.</p> <p>The exam consists of an oral test on the topics developed during the lesson hours in the classroom and in the laboratory/field, as reported in the Didactic Regulations of the Master's Degree in Plant Medicine (Article 9) and in the study plan (Annex A). In particular, the student will give an oral presentation (Power Point) on a topic related to the course which will be successively discussed with 3 questions on other topics of the course.</p> <p>For foreign students, the examination procedure consists of an oral test in English on the topics covered during class hours.</p>
Assessment criteria	<ul style="list-style-type: none"> • Knowledge and understanding: <ul style="list-style-type: none"> ○ Knowledge of the main morpho-physiological characteristics of Mediterranean fruit tree species. ○ Knowledge of the cultural practices applied to the different fruit tree species. ○ Understanding the primary and alternative uses of the different fruit products. • Applying knowledge and understanding: <ul style="list-style-type: none"> ○ Ability to analyze the specific needs of the different species/varieties/rootstocks and suggest the most appropriate ones for the different environments. ○ Ability to know and apply the different cultural practices for the various fruit tree species. ○ Understanding the different uses of the various fruit products to differentiate the production. • Autonomy of judgment: <ul style="list-style-type: none"> ○ Correctly suggest the choice of the most suitable species/varieties/rootstocks in different pedo-climatic conditions. ○ Evaluate and properly advise on the application of the cultural practices for the different fruit tree species. ○ Give accurate and appropriate tools to face the various events (physiological, climatic, etc.) occurring in the orchard. • Communication skills: <ul style="list-style-type: none"> ○ Explain the acquired skills with both an appropriate language to the treated topics and a technical knowledge. ○ Present the acquired knowledge in the form of a presentation, pitch, brainstorming for both didactic and technical purposes. • Capacities to continue learning:

	<ul style="list-style-type: none"> ○ Evaluate the management of the orchard/vineyard with a careful choice of species/variety/rootstock and suitable cultural practices. ○ Broaden the acquired knowledge through in-depth analysis of technical and scientific texts of the fruit tree area, attending seminars, webinars, etc.
Final exam and grading criteria	<p>The assessment of the student's preparation takes place on the basis of pre-established criteria, as detailed in Annex A of the Academic Regulations of the Master's Degree in Plant Medicine (expressed through the European Descriptors of the Degree).</p> <p>For students who have taken the mid-term test, the evaluation of the exam is expressed as the average between the mark obtained on the mid-term test and the final exam. The final mark is in 30 points. The test is passed with a mark higher or equal to 18. By unanimous vote of its members, the Board may award honours in case where the final mark is 30.</p>
Further information	