

General information	
Academic subject	Fruit Tree Science
Degree course	Agricultural Sciences and Technologies (L-25)
Academic Year	2021/2022
European Credit Transfer and Accumulation System (ECTS)	6
Language	Italian
Academic calendar (starting and ending date)	II semester (1 March 2022 – 17 June 2022)
Attendance	no

Professor/ Lecturer	
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Department and address	DiSSPA
Virtual headquarters	Teams
Tutoring (time and day)	Every day from 8.30 to 13.30 pm according to a scheduled appointment. Tutoring could be also done on online platforms (Teams).

Syllabus	
Learning Objectives	At the end of the course the students will acquire the basic knowledge on the morphology, physiology, and management of fruit tree species.
Course prerequisites	Botany
Contents	<ul style="list-style-type: none"> ▪ Morpho-physiological aspects of fruit tree species. Root system; canopy; vegetative cycle; reproductive cycle. ▪ Physiology and environment. The physiology of fruit trees in different environments. ▪ Propagation. Sexual and vegetative. ▪ Pruning and training systems. Winter and summer pruning. Trellising systems. ▪ Management of the orchard. Principles of irrigation, fertilization and soil management. ▪ Ripening and quality of fruit. Physiological aspects of fruit growth and ripening. Time and types of harvesting. Quality indices.
Books and bibliography	<ul style="list-style-type: none"> ✓ Appunti dalle lezioni e materiale didattico distribuito durante il corso. ✓ Principi di Arboricoltura. Peano e Sottile. 2019. Edises. ✓ Arboricoltura generale. Sansavini S., Costa G., Gucci R., Inglese P., Ramina A., Xiloyannis C. 2012. Pàtron editore S.r.l. ✓ Coltivazioni arboree. Baldini e Marangoni. 1997. Thema Club.
Additional materials	

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
150	32	28	90
ECTS			
6	4	2	
Teaching strategy	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	
Knowledge and understanding on:	<ul style="list-style-type: none"> ○ Knowledge of the morphological aspects of fruit tree species. ○ Knowledge of physiology applied to fruit tree species in the Mediterranean area. ○ Knowledge of the principles and applications of orchard management to fruit tree species (from propagation to harvesting). ○ Knowledge of the morpho-physiological aspects related to the ripening of the different types of fruit.
Applying knowledge and understanding on:	<ul style="list-style-type: none"> ○ Ability to evaluate the influence of environmental factors on the physiological aspects of fruit tree species. ○ Ability to evaluate the influence of management techniques on the physiological and quantitative-qualitative aspects of the productions from a perspective of environmental and economic sustainability. ○ Ability to evaluate the fundamental criteria related to the optimal ripening of the fruit in relation to the destination of the product.
Soft skills	<ul style="list-style-type: none"> • Autonomy of judgment <ul style="list-style-type: none"> ○ Ability to correctly suggest the choice of suitable fruit species/varieties in the different cultivation areas. ○ Ability to evaluate the physiological aspects in the different environments with practical implications on the production. ○ Ability to critically evaluate the use of different cultivation techniques for a sustainable management of the fruit species. • Communication skills <ul style="list-style-type: none"> ○ Ability to expose the skills acquired with their own vocabulary and pertinent to the discipline. • Ability to learn <ul style="list-style-type: none"> ○ Ability to extend the knowledge acquired during the course through the reading and understanding of scientific and technical texts.

Assessment and feedback	
Methods of assessment	<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 Degree Course in Agricultural Sciences and Technologies (Article 9) and in the study plan (Annex A).</p> <p>For foreign students, the examination procedure consists of an oral test in English on the topics covered during class hours.</p>
Evaluation criteria	<ul style="list-style-type: none"> • Knowledge and understanding <ul style="list-style-type: none"> ○ Description of the main morpho-physiological characteristics of fruit tree species.

	<ul style="list-style-type: none"> ○ Knowledge of the principles and criteria underlying pruning, grafting and management of fruit tree species. ○ Knowledge of the mechanisms underlying the ripening of the fruits and quality indices used. ● Applied knowledge and understanding <ul style="list-style-type: none"> ○ Knowledge of the vegetative and reproductive cycle of fruit tree species. ○ Knowledge of propagation techniques. ○ Understanding of the cultivation techniques applied for a sustainable management of the orchard. ● Autonomy of judgment <ul style="list-style-type: none"> ○ Correctly indicate the application of the best and modern cultivation techniques for an optimal physiological management of fruit trees. ○ Evaluate the physiological/phenological criteria (chilling hours, heat requirement, critical temperatures, etc.) to be considered either before planting an orchard or for its management. ● Communication skills <ul style="list-style-type: none"> ○ Explain the skills acquired with a language appropriate to the topics discussed. ○ Ability to organize the acquired knowledge in the form of a presentation for didactic-training purposes. ● Ability to learn <ul style="list-style-type: none"> ○ Manage a fruit tree species/variety based on physiological and environmental needs to optimize the production response both qualitatively and quantitatively. ○ Broaden the acquired knowledge through in-depth analysis of technical and scientific texts of the fruit tree area.
Criteria for assessment and attribution of the final mark	<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 Degree Course in Agricultural Sciences and Technologies (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.</p>
Additional information	