COURSE OF STUDY Agricultural Science and Technology
ACADEMIC YEAR *2023/2024*
ACADEMIC SUBJECT Plant Physiology

General information	
Year of the course	*Second*
Academic calendar (starting and ending date)	*AY 2023-2024 (March 4th June 14th)*
Credits (CFU/ETCS):	Three
SSD	*AGR 13*
Language	*Italian*
Mode of attendance	*Not compulsory*

Professor/ Lecturer	
Name and Surname	*Claudio Cocozza*
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Telephone	*080 544 2282*
Department and address	*DISSPA, Agricultural Chemistry and Biochemistry section, Room #5, first floor*
Virtual room	*Microsoft teams, Zoom or other apps*
Office Hours (and modalities: e.g., by appointment, on line, etc.)	*Tutoring hours can be every day, in-person or online, by appointment request.*

Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
75	*24*	*0*	*51*
CFU/ETCS			
3	*3*	*0*	

Learning Objectives	
Course prerequisites	*Preliminary knowledge of plant cytology and histology and general botany are recommended to adequately address the content covered in the course.*

Teaching strategie	*The lectures will be provided with several examples and illustrations by means of PowerPoint presentations, movies, practical drills in the classroom and laboratory*
Expected learning outcomes in terms of	
Knowledge and understanding on:	*Knowledge and understanding* ○ Knowledge and understanding on the basic aspects of plant physiology
Applying knowledge and understanding on:	*Applying knowledge and understanding* ○ Understanding the physiology of the crops during the cultivation
Soft skills	*Making informed judgements and choices* ○ Ability to identify the physiological disorders of crops ○ Manage the irrigation, the fertilizers and the environment in order to restore the better physiological conditions of crops *Communicating knowledge and understanding* ○ Ability of describing the physiological phenomena involving the crops

	Capacities to continue learning Ability of updating the knowledge about the plant physiology in the considered context
Syllabus	
Content knowledge	*Plants and water. Structure and properties of water. Diffusion and osmosis. The water potential. The water potential of the plant cell. The properties of the cell wall and membrane.* *Water and soil. The root water absorption. The xylematic water transportation. The water from the leaf to the atmosphere.* *Essential nutrients. The treatments of the nutritional disorders. Soil root and microorganisms. Nitrogen in the environment. Absorption of nitrate and ammonium. Nitrogen fixation. Absorption of Sulphur, phosphorous, cations and oxygen* *Transport of solutes across membranous barriers. Membrane transport processes. Membrane transport proteins. Ion transport in roots.* *Sources and sinks. Model of translocation from sources to sinks.* *Loading and unloading of the floem.*
Texts and readings	• Fisiologia Vegetale (2013). L. Taiz, E. Zeiger. Piccin Editore • Notes of the lectures
Notes, additional materials	*Students could get a copy of all presentations from the lecturer*
Repository	*Microsoft teams virtual class*

Assessment	
Assessment methods	*Only the students enrolled in the academic year during which this module is offered, can have an intermediary exam during the teaching period of module. The result of this intermediary exam remains valid for the whole academic year and concurs to the final evaluation of the student.* *The intermediary exam will be given on the subjects treated during the lessons and the practical activities as reported in the Didactic Regulation in Agricultural Science and Technology (art. 9) and syllabus (annex A) and which is correlated to the actual teaching period. The evaluation of the intermediary exam is expressed in thirtieths.* *At the end of the module teaching period, the students who passed positively the intermediary exam, can give the final exam concerning on the subjects treated during the lessons and the practical activities since the intermediary exam, as reported in the Didactic Regulation in Agricultural Science and Technology (art. 9) and syllabus (annex A) and which is correlated to the actual teaching period. Students who did not pass or give the intermediary exam will be examined on the whole subjects treated during the lessons and the practical activities as reported in the Didactic Regulation in Agricultural Science and Technology (art. 9) and syllabus (annex A) and which is correlated to the actual teaching period.* *The intermediary and the final exams consist of an oral examination. The evaluation of the student is based on criteria previously fixed such as reported in the Annex A of the Didactic Regulation in Agricultural Science and Technology.* *The exam for foreign students can be given in English according to the above reported modalities.*
Assessment criteria	*Knowledge and understanding* ○ Knowledge and understanding of the basic aspects of plant physiology *Applying knowledge and understanding* ○ Understanding the physiology of the crops *Making informed judgements and choices* ○ Ability to identify the physiological disorders of crops ○ Manage the irrigation, the fertilizers and the environment in order to restore the better physiological conditions of crops

	Communicating knowledge and understanding ○ Ability of describing the physiological phenomena involving the crops *Capacities to continue learning* ○ Ability of updating the knowledge about the plant physiology in the considered context The results of the expected learning, in term of knowledge and ability, are listed in the Annex A of the Didactic Regulation of the Bachelor Degree Course (expressed by the European descriptors of the study title).
Final exam and grading criteria	*The final grade is given in thirtieths. The exam is considered passed when the grade is greater than or equal to 18.*
Further information	