

COURSE OF STUDY - CL IDEAS

ACADEMIC YEAR 2023-2024 -

ACADEMIC SUBJECT Innovative technologies in managing postharvest diseases

General information	
Year of the course	2023-2024
Academic calendar (starting and ending date)	
Credits (CFU/ETCS):	3 ECTS (2 ECTS of Lectures + 1 ECTS of laboratory classes)
SSD	AGR12
Language	<i>English</i>
Mode of attendance	<i>In presence</i>

Professor/ Lecturer	
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Virtual room	
Office Hours (and modalities: e.g., by appointment, on line, etc.)	Monday-Friday 9:00-18:00 In person or online (teams) by prior appointment

Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
<i>60</i>	<i>20</i>	<i>10</i>	<i>30</i>
CFU/ETCS			
<i>3</i>	<i>2</i>	<i>1</i>	

Learning Objectives	Knowledge about the most recent means and methods to minimize postharvest losses due to biotic and abiotic diseases of fresh fruit and vegetables
Course prerequisites	Basic knowledge of Biology, Chemistry, and Microbiology

Teaching strategies	Lectures will be given with the aid of Power Point presentations, video clips, consultations of websites and repository. Laboratory practices and/or educational tours in agri-foods industries will be conducted. Lecture materials will be provided by means of a mailing list or online platforms (i.e.: Microsoft Teams, Google Drive, etc).
Expected learning outcomes in terms of	

Knowledge and understanding on:	Innovative techniques used to minimize the postharvest losses and diseases
Applying knowledge and understanding on:	Apply innovative strategies, means and methods of control for preserving the quality and safety of produce
Soft skills	<ul style="list-style-type: none"> • <i>Making informed judgments and choices</i> <ul style="list-style-type: none"> ○ A proper evaluation of the most effective and suitable innovative solutions to control the development of biotic and abiotic diseases of harvested products and prolong shelf-life. • <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> ○ Ability to describe in oral and written form means and methods that maintain the quality of the products and their sustainability within the circular economy scenario. <p>Communicating the importance of the economic and social impact of a correct management of biotic and abiotic diseases</p>
Syllabus	
Content knowledge	<p>Alternative solutions that can replace or be combined to authorised fungicides after harvest against pathogens and their metabolites on fresh products:</p> <ul style="list-style-type: none"> • Chemical means: additives, salts, phenolics, volatiles, etc. • Physical means: refrigeration, thermotherapy, curing, pressures other than atmospheric, ionizing radiations, ozone, plasma, electrolyzed water, etc. • Biological means: antagonistic microorganisms and their products, plant extracts, etc. • Study of their mode of action: modifications of the microbial ecosystem, direct effect on the pathogen induction of resistance in the host <p>Application of early pathogen diagnostic tools to increase efficacy of control means.</p>
Texts and readings	<ul style="list-style-type: none"> • Haq I.U., Ijaz S. (Eds.) (2020). Plant Disease Management Strategies for Sustainable Agriculture through Traditional and Modern Approaches. Chapter 7: Conventional and Modern Technologies for the Management of Post-Harvest Diseases (Vol. 13). Springer Nature. • Xu X, Fountain M. (Eds.) (2019). New techniques for managing postharvest diseases of fruit. In: Integrated management of diseases and insect pests of tree fruit Chapter 14, Burleigh Dodds Science Publishing, UK. ISBN-13: 9781786762566. • Watkins C. (Ed.) (2020). Advances in postharvest management of horticultural produce. Burleigh Dodds Science Publishing, UK. ISBN-13: 9781786762887
Notes, additional materials	Lecturer's ppt presentations and other teaching material (monographs, PDF files, etc.) distributed throughout the course.
Repository	
Assessment	
Assessment methods	The exam consists of an oral dissertation on the topics developed during the theoretical/practical lectures in the classroom and in the laboratory/food industries. Students attending at the lectures may have a middle-term preliminary exam, consisting of a written test, related to the first part of the program, which will concur to the final evaluation and will be considered valid for a year.
Assessment criteria	<ul style="list-style-type: none"> • <i>Knowledge and understanding</i> <ul style="list-style-type: none"> ○ Knowledge of the modern control means and methods for reducing development of postharvest biotic and abiotic diseases. • <i>Applying knowledge and understanding</i> <ul style="list-style-type: none"> ○ Set up of control strategies to maintain the quality of harvested commodities.

	<p><i>Autonomy of judgment</i></p> <ul style="list-style-type: none"> ○ Evaluating suitability of innovative control means to reduce postharvest diseases of fruit and vegetables <ul style="list-style-type: none"> ● <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> ○ Ability to understand the questions and answering in a critical way ● <i>Communication skills</i> <ul style="list-style-type: none"> ○ Correct exposure and language proficiency will be evaluated with marks of excellence. ● <i>Capacities to continue learning</i> <p>Grasping strengths and weaknesses of the proposed solutions</p>
Final exam and grading criteria	<ul style="list-style-type: none"> ● <i>Number of correctly answered questions (at least 2 out of 3)</i> ● <i>Completeness of the answers</i> ● <i>Ability in making connections and critical thinking</i>
Further information	
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