

General information	
Academic subject	Innovative technologies in managing postharvest diseases
Degree course	INNOVATION DEVELOPMENT IN AGRIFOOD SYSTEMS (IDEAS)
Academic Year	2021/22
European Credit Transfer and Accumulation System (ECTS)	3 ECTS (2 ECTS of Lectures + 1 ECTS of laboratory or field classes)
Language	English
Academic calendar (starting and ending date)	<i>1 semester</i>
Attendance	Free

Professor/ Lecturer	
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Department and address	Department of Soil, Plant and Food Sciences
Virtual headquarters	
Tutoring (time and day)	From Monday to Friday, morning or afternoon, upon e-mail/phone request.

Syllabus	
<b>Learning Objectives</b>	Knowledge about the most recent means and methods to minimize postharvest losses due to biotic and abiotic diseases of fresh fruit and vegetables.
<b>Course prerequisites</b>	Basic knowledge of Biology, Chemistry, and Microbiology
<b>Contents</b>	Chemical means alternative to fungicides that can be used in post-harvest; additives, salts and chemical molecules other than classical fungicides (eg. calcium, silicon, volatile compounds, etc.); modifications of the microbial ecosystem and phenomena of resistance; Physical means (refrigeration, thermotherapy, curing, humidity, atmospheric pressure, ionizing and non-ionizing radiations, gas composition, ozone, plasma, electrolyzed water, etc.). Biological means (use of antagonistic microorganisms; products of natural origin; induction of resistance in the host). Integrated management.
<b>Books and bibliography</b>	- Pareek, S. (Ed.). (2018). Novel postharvest treatments of fresh produce. CRC Press. - 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.
<b>Additional materials</b>	Lecturer's note and other teaching material (monographs, PDF files, etc.) distributed throughout the course.

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
<b>Hours</b>			
76	16	14	46
<b>ECTS</b>			
	2	1	

<b>Teaching strategy</b>	Lectures given with the aid of Power Point presentations, video clips, educational tour in agri-foods industries. Lecture notes and educational supplies will be provided by means of a mailing list or online platforms (i.e.: Microsoft Teams, Google Drive, etc). On-line consultations of internet sites during lessons and/or practicum.
<b>Expected learning outcomes</b>	
<b>Knowledge and understanding on:</b>	Innovative techniques used to minimize the postharvest losses and diseases
<b>Applying knowledge and understanding on:</b>	Apply innovative strategies, means and methods of control in order of preserving the quality of produce;
<b>Soft skills</b>	<ul style="list-style-type: none"> <li>• <i>Making informed judgments and choices</i> <ul style="list-style-type: none"> <li>○ Making a right judgment to identify innovative solutions to control the development of biotic and abiotic diseases of products</li> </ul> </li> <li>• <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Ability to describe in oral and written form strategy, means and methods that maintain the quality of the products and their sustainability within the circular economy</li> <li>○ Communicating the importance of the correct management of biotic and abiotic diseases of fruit and vegetables and of produce in general</li> </ul> </li> <li>• <i>Capacities to continue learning</i> <ul style="list-style-type: none"> <li>○ Ability of deepening and updating knowledge about the modern technologies for controlling postharvest diseases of produce</li> </ul> </li> </ul>

<b>Assessment and feedback</b>	
Methods of assessment	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.
Evaluation criteria	<ul style="list-style-type: none"> <li>• <i>Knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Knowledge of the modern control means and methods for reducing development of postharvest biotic and abiotic diseases.</li> </ul> </li> <li>• <i>Applying knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Set up of control programs to maintain the quality of plant products.</li> </ul> </li> <li>• <i>Autonomy of judgment</i> <ul style="list-style-type: none"> <li>○ Evaluating suitability of innovative control means to reduce postharvest diseases of fruit and vegetables</li> </ul> </li> <li>• <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Ability to understand the questions and answering in a critical way</li> </ul> </li> <li>• <i>Communication skills</i> <ul style="list-style-type: none"> <li>○ Correct exposure and language proficiency will be evaluated with marks of excellence.</li> </ul> </li> <li>• <i>Capacities to continue learning</i> <ul style="list-style-type: none"> <li>○ Grasping the point of force and weakness of the problems</li> </ul> </li> </ul>
Criteria for assessment and attribution of the final mark	<ul style="list-style-type: none"> <li>• Number of correctly answered questions (at least 2 out of 3)</li> <li>• Completeness of the answers</li> <li>• Ability in making connections and critical capacity</li> </ul>

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<b>Additional information</b>	