

Syllabus

Course description

Course title	Protection and valorization of viticultural systems in mountain areas
Course code	44619
Scientific sector	AGR 12, AGR 13, AGR/10
Degree	Master in Viticulture, Enology and Wine Marketing
Semester	1 st
Year	II
Academic year	2021/22
Credits	10
Modular	Yes

Total lecturing hours	56
Total lab hours	36
Total exercise hours	
Attendance	Not compulsory
Prerequisites	
Course page	Course Offering - Master in Viticulture, Enology and Wine Marketing / Free University of Bozen-Bolzano (unibz.it)

Specific educational	Sustainable management of mountain viticulture within landscape valorization
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objectives	<p>The course aims to create a professional figure able to insert a winery in a sustainable mountain environment and in accordance with the landscape</p> <p>The course aims to provide general criteria for the correct design of a winery and the role of the oenologist carried out in this area. It will also provide a picture of different technologies available to a modern winery and the inclusion of the whole in the mountain landscape.</p>
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Module title 1	44619A Plant pathogens and disease management strategies in vineyards in mountain area (3 ECTS)
Lecturer	Selena Tomada (Free University of Bozen-Bolzano)

Scientific sector of the lecturer	
Teaching language	English
Office hours	Upon arrangement by email (Wednesday from 5 p.m. to 6 p.m.)
Targeted learning outcomes:	<p>Students will gain in-depth knowledge of abiotic disorders and the biology of the most important grapevine pathogens, understanding how plant pathogens and their host plants interact in the environment. They will also be able to recognise and identify symptoms of disorders and symptoms and signs of diseases and formulate hypotheses about the causes of disorders and diseases. Furthermore, students will gain the ability to make informed judgments about the appropriate diagnostic technique and the develop of a strategy to control grapevine disorders and diseases.</p>
Content:	<p>The course will start with an outline of grapevine disorders and diseases with epidemic potential. Subsequently, the course will focus on the most important grapevine diseases caused by viruses and viroids, bacteria and phytoplasmas, oomycetes and fungi, and nematodes. Special focus will be given to the disease epidemiology and the environmental factors potentially favouring the development of infectious</p>

	<p>grapevine diseases in mountain areas. Disease control strategies in integrated and organic farming systems will be covered, including the application of disease forecasting and expert systems as well as the reference legislation for the production and marketing of vine propagation materials. A focus on the most innovative biocontrol techniques will follow together with an overview of the plant protection product registration process. The grapevine disorders caused by environmental factors will be discussed, and great attention will be given to the situation in mountain areas. Finally, the importance of advanced diagnostic tools for the prevention and containment of grapevine diseases will be discussed and implemented in the laboratory.</p>
Teaching format	PowerPoint presentations and case studies
Exam form:	Oral exam (60%) and students' project work (40%) assessed through a presentation and technical assignments to be developed in groups. To pass the module, both the written exam and the project work must be assessed with a positive mark.
Literature:	<p>Agrios, GN (2005). Plant Pathology, Fifth edition. Elsevier LDT, Oxford, 921 pages. ISBN 978-0120445653</p> <p>Bettiga, LJ (Ed.). (2013). Grape Pest Management, Third edition. University of California - Agriculture and Natural Resources Publications, 609 pages. ISBN 978-1601078001</p> <p>Wilcox, WF, Gubler, WD, Uyemoto JK (Eds.). (2015). Compendium of Grape Diseases, Disorders, and Pests, Second edition APS Press. 232 pages, ISBN 978-0890544792</p> <p>Additional reviews and articles related to the topics of the module will be provided by the lecturer</p>

Module 2	44619B MANAGEMENT AND USE OF AGROCHEMICALS AND THEIR FATE IN THE ENVIRONMENT (3 ECTS)
Lecturer	Youry Pii
Scientific sector of the lecturer	AGR/13
Teaching language	English
Office hours	Available from Monday to Friday, upon appointment through e-mail (youry.pii@unibz.it)
List of topics covered	Classification of agrochemicals.

	<p>Agrochemicals and their metabolism within cells: mode of action of fungicides (interference with respiration, biosynthesis of sterols, chitin, tubulin and nucleic acids); mode of action of insecticides (neurotoxic and decoupling insecticides); mode of action of herbicides (interference with photosynthesis, biosynthesis of amino acids and biosynthesis of lipids).</p> <p>Agrochemicals metabolism in plants: reactions of oxidations, reduction, hydrolysis and conjugation.</p> <p>Agrochemicals fate in soil: movement (leaching, run-off, volatilization), adsorption (adsorption isotherms and adsorption coefficients) and degradation (photodecomposition, chemical and microbiological degradations).</p> <p>European and Italian legislation of agrochemicals, labeling and their storage.</p> <p>Practical exercise: determination of agrochemical adsorption and agrochemical degradation in soils.</p>
<p>Teaching format</p>	<p>The course consists of lectures (16 hours of frontal lectures) during which the different topics will be presented and discussed. Practical lessons and laboratory activities (12 hours in total), conducted by the Teacher and the Teaching Assistants, are also foreseen. Course topics will be presented using Power Point presentations; all the Power Point presentations will be given to the students.</p>

<p>Learning outcomes</p>	<ul style="list-style-type: none"> • Knowledge and understanding <p>Students will acquire knowledge about the main mechanisms involved in the action of agrochemicals on target organisms and their fates in the environment.</p> <ul style="list-style-type: none"> • Making judgements <p>The knowledge acquired will allow students to make judgements about the application of agrochemicals in practical situations</p>
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	<ul style="list-style-type: none"> • Communication skills <p>Students will acquire the ability to describe advantages and issues related to the application of agrochemicals in viticulture.</p> <ul style="list-style-type: none"> • Learning skills <p>Students will acquire the skills and expertise to widen and to update their knowledge about the contents and the topics discussed within the course.</p>
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Assessment	<p>Oral and lab.</p> <p>The final assessment will consist in an oral exam, which will consist in a) questions to evaluate the knowledge and the understanding of the topics discussed during the classes and b) questions aimed at establishing the ability to apply such knowledge to hypothetical case studies.</p> <p>The ability to rework the experience acquired during laboratory exercises will also be evaluated.</p>
Assessment language	English
Evaluation criteria and criteria for awarding marks	The final mark will be awarded based on the following criteria: the clarity of the response, the ability to summarize, evaluate, and establish relationships between topics

Literature	<p>Gennari M. and Trevisan M. "Agrofarmaci - Conoscenze per un uso sostenibile" ISBN 978-88-8372-444-2</p> <p>Müller F. "Agrochemicals : composition, production, toxicology, applications" ISBN 3-527-29852-5</p> <p>Roberts T.R. "Metabolic pathways of agrochemicals" ISBN 0-85404-494-9;ISBN 0-85404-499-X</p>
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Module 3	44619C Management and design of wineries in the mountain landscape (4 ECTS)
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Lecturer	Rino Gubiani, rino.gubiani@uniud.it
Scientific sector of the lecturer	AGR/10
Teaching language	English
Office hours	Upon arrangement by email
Teaching assistant (if any)	-
Office hours	-
List of topics covered	Mountain landscape, winery design, plant layout of winery, project of buildings
Teaching format	Frontal lectures, visit wineries, project of winery.

Learning outcomes	<p>The course aims at providing students with the knowledge and expertise on the harmonization of the instrumental buildings (cellars and storage warehouses) and any process plants destined to remain in outdoor areas with the typical rural architecture of a given territory. The landscape design of the resources in charge of a winery will necessarily have to concern also the integration of all the infrastructural aspects of the land structures that must be carefully integrated with the existing environment, minimizing the negative effects related to visual quality, as well as any acoustic and olfactory impacts.</p> <p>Knowledge and understanding</p> <p>Applying knowledge and understanding</p> <p>Making judgements</p> <p>Communication skills</p> <p>Learning skills</p>
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Assessment	<p>The final evaluation will consist of a graphic design of a winery on which the oral exam will focus, which will consist of a) questions to assess the knowledge and understanding of the topics discussed during the lessons and b) questions to establish the ability to apply this knowledge to hypothetical cases studies. The final grade will be assigned based on the following criteria: clarity of</p>
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	the answer, ability to summarize, evaluate and establish relationships between topics.
Assessment language	English
Evaluation criteria and criteria for awarding marks	<p>Admission, final mark, sum of marks from partial assessments, etc.</p> <p>In case of partial assessments: weighting of parts (e.g., 20% oral and 80% written; 50% written and 50% lab, ...), threshold for individual assessments.</p> <p>Examples:</p> <ul style="list-style-type: none"> • relevant for assessment 1: clarity of answers, mastery of language (also with respect to teaching language), ability to summarize, evaluate, and establish relationships between topics; • relevant for assessment 2: ability to work in a team, creativity, skills in critical thinking, ability to summarize in own words
Required readings	
Supplementary readings	

