

Syllabus

Course description

Course title	<u>Agrochemicals in vineyard pest-management and environment-landscape in mountains areas</u>
Course code	44613
Course credits	10 ECTS
Degree	Viticulture, Enology and Wine Marketing
Semester	I
Year	II
Academic year	2020/2021
Modular	Yes

Module title	Plant pathology defence in vineyards in mountain areas
Course code	44613A
Scientific sector	AGR/12
Degree	Viticulture, Enology and Wine Marketing
Semester	I
Year	II
Academic year	2020/2021
Credits	3 ECTS
Total lecturing hours	Frontal lectures: 16 h
Total lab and exercise hours	Exercises: 12 h

Attendance	Not compulsory
Prerequisites	-
Course page	-
Lecturer	Selena Tomada (Free University of Bozen-Bolzano)
Teaching language	English
Office hours	Upon arrangement by email
Targeted learning outcomes:	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.
Content:	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 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.
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>

Course title	Agrochemicals in vineyard pest-management and environment-landscape in mountains areas
Module title	Management and use of agrochemicals and their fate in the environment
Course code	44613B
Scientific sector	AGR/13
Degree	Viticulture, Enology and Wine Marketing
Semester	I
Year	II
Academic year	2020/2021
Credits	3 ECTS

Total lecturing hours	Frontal lectures: 16 h;
Total lab and exercise hours	Laboratory exercises: 12 h;
Total exercise hours	-
Attendance	Not compulsory

Prerequisites	-
Course page	-
Lecturer	Youry Pii
Teaching language	English
Office hours	Upon arrangement by email
Targeted learning outcomes:	The course aims at providing students with the knowledge and expertise on the agrochemicals modes of action and the fate of these chemicals in the agro-ecosystem, with specific reference to vineyard applications. This knowledge will allow the sustainable management of this agricultural practice for the protection of grapevine
Content:	<p>Classification of agrochemicals.</p> <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>Management of the principal diseases and parasites in vineyards through the distribution of phytosanitary products.</p> <p>Formulation of agrochemicals and labeling.</p> <p>Practical exercise: determination of agrochemical adsorption and agrochemical degradation in soils.</p>
Teaching format	PowerPoint presentations and blackboard
Exam form:	The final assessment will consist in an oral exam, which will consist in a) questions to evaluate the knowledge and understanding of the topics discussed during the classes and b) questions aimed at establishing the ability to apply such knowledge to hypothetical case studies in grapevine production. The ability to rework the experience acquired during laboratory exercises will also be evaluated.

	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:	Müller F. "Agrochemicals : composition, production, toxicology, applications" ISBN 3-527-29852-5 Roberts T.R. "Metabolic pathways of agrochemicals" ISBN 0-85404-494-9;ISBN 0-85404-499-X

Course title	Agrochemicals in vineyard pest-management and environment-landscape in mountains areas
Module title	Mountain viticulture and landscape
Course code	44613C
Scientific sector	AGR/10
Degree	Viticulture, Enology and Wine Marketing
Semester	I
Year	II
Academic year	2020/2021
Credits	4 ECTS

Total lecturing hours	Face to face lectures 24 hours
Total exercise hours	12 h
Attendance	Not compulsory
Prerequisites	Knowledge about winemaking and winery equipment
Course page	-
Lecturer	Rino Gubiani
Teaching language	English
Office hours	Upon arrangement by email

Targeted learning outcomes:	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.
Content:	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.
Teaching format	Lesson in classroom with power point presentation and blackboard. Teaching visits in winery or farm with vineyards and firm about winery equipment
Exam form:	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 the answer, ability to summarize, evaluate and establish relationships between topics.
Literature:	Mountain and Steep Slope Viticulture (ISBN 9788890233036) http://vit.entecra.it/sito_cong2/atti_en.html . Gubiani Rino. Lesson notes and slide presentation (PDF), Esse3, 2018. Acocella A. L'architettura dei luoghi. E. CSR Roma, pp 583, 1992.