

Syllabus

Course description

Course title	<u>Agrochemicals in vineyard pest-management and environment-landscape in mountains areas</u>
Module title	Plant pathology defence in vineyards in mountain areas
Module code	44613
Module credits	10 ECTS
Course code	44613A
Scientific sector	AGR/12
Degree	Agricultural and Agro-Environmental Sciences
Semester	I
Year	II
Academic year	2018/2019
Credits	3 ECTS
Modular	Yes

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

Prerequisites	-
Course page	-
Lecturer	Baric, Sanja (Free University of Bozen-Bolzano)
Teaching language	English
Office hours	Upon arrangement by email
Targeted learning outcomes:	Students will gain in-depth knowledge on abiotic disorders and on the biology of the most important pathogens and parasites of grapevine, and understand 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 develop a strategy for control of 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 grapevine disorders caused by environmental factors and put special emphasis on the situation in mountain areas. An in-depth treatment of the most important grapevine diseases caused by viruses and viroids, bacteria and phytoplasmas, oomycetes and fungi, and nematodes will follow, with special focus on 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. 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:	Written exam (70%) and students' project work (30%) assessed through a presentation and a short paper. To pass the module, both the written exam and the project work must be assessed with a positive mark.
Literature:	Agrios, GN (2005). Plant Pathology, Fifth edition. Elsevier LDT, Oxford, 921 pages. ISBN 978-0120445653

	<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>
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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
Module code	44613
Module credits	10 ECTS
Course code	44613B
Scientific sector	AGR/13
Degree	Agricultural and Agro-Environmental Sciences
Semester	I
Year	II
Academic year	2018/2019
Credits	3 ECTS
Modular	No

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. 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:	<p>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.</p> <p>The final mark will be awarded based on the following criteria: the clarity of the response, the ability to</p>

	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
Module code	44613
Module credits	10 ECTS
Course code	44613B
Scientific sector	AGR/13
Degree	Agricultural and Agro-Environmental Sciences
Semester	I
Year	II
Academic year	2018/2019
Credits	4 ECTS
Modular	Yes

Total lecturing hours	Face to face lectures 24 hours
Total lab and exercise hours	Laboratory exercises and study visits 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 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.
Content:	Definition of the concept of "landscape unit", to be analyzed through multidimensional methods by first evaluating indicators related to the so-called "structural factors" (degree of incorporation into the plot of the building, degree of isolation from the rest of the local agro-eco-landscape, dimensional classes of the company's structural resources) to be combined with other indicators of different nature (related to natural, environmental, historical and aesthetic aspects). Aspects of deepening in terms of infrastructure resources will concern, for example, the adjustment of the rural road network on farm roads to be integrated with the existing road network to allow the transit of agricultural vehicles without damage to the road cover due to the presence of tracks (very recurrent in the hilly and mountainous area).
Teaching format	PowerPoint presentations and blackboard
Exam form:	The final assessment will consist in an oral and/or written 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. 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:	Keynotes provided by the lecturer;

Mountain and Steep Slope Viticulture (ISBN
9788890233036)

http://vit.entecra.it/sito_cong2/atti_en.html