

Master Programme: AGRICULTURAL SCIENCES AND TECHNOLOGIES
Curriculum: Plant production and protection
Integrated Course: Plant Pathology II (6 ECTS)
Module: Virology (3 ECTS)
 (2 ECTS Lectures + 1 ECTS Laboratory or field classes)

Professor

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Educational Goals

The teaching course is aimed at providing students with basic knowledge on plant diseases caused by virus and virus-like entities) with information on taxonomy, biological characteristics and criteria for their identification. For virus and virus-like entities representative of different taxonomic groups are given paradigmatic hints on aspects related to epidemiology, symptoms and prevention.

Acquirable skills

Capability to recognize the etiological causes of alterations and/or diseases, to quantify the damages and to prevent the most common phytopathological problems caused by virus and virus-like entities. Furthermore, such competences will be a base for getting further deeper knowledge on plant pathology. The expected learning results, in term of knowledge and skills, are listed in the Annex A of the Teaching Regulation of the Bachelor Course in Agricultural Science and Technology (expressed by means of the European Descriptors of the Bachelor's Course; concerning the Plant Protection Disciplines).

Course content (1 ECTS of Lecture e = 8 hours; 1 ECTS of Laboratory and field classes = 14 hours)

Topic/Subject	N. ECTS	Number of hours	
		Lectures	Lab & field cl.
General aspects Economic importance of the virus diseases Definition, composition and morphology of viruses, nomenclature and classification Infecting process and host relations. Isolation, colture and purification of plant viruses. Virus transmission and Ecology. Virus-host plant interactions	0.5	4	
Control Agronomic control activities (removal of residues of the previous cultivation, crop alternation). Phytoiatic control activities (weeding, vector control, production and use of healthy seeds and propagating material, sanitation, preimmunity, use of resistant plant). Phytosanitary regulations (plant passaport, legislative rules for production and marketing of plant propagating material).	0.2	2	
Special part Major viruses and virus diseases of Citrus: Tristeza, Citrus variegation, Citrus psorosis, concave gum, cristacortis, impietratura, ringspot, exocortite e cachexia). Major stone fruit viruses: Apple chlorotic leaf spot virus, Apple mosaic virus, Prunus dwarf virus, Prunus necrotic ringspot virus, Plum pox virus. Grapevine virus diseases: Fanleaf, Leafroll and Rugose wood complexes, enations, vein necrosis, vein mosaic,	1.3	6	7

bushy stunt Phytoplasma diseases: Flavescence dorée; Bois noir			
Viruses of vegetables: Alfa alfa mosaic virus; Cucumber mosaic virus; Lettuce mosaic virus, Potato Y virus; Pelargonium zonate spot virus; Tomato spotted wilt virus; Tomato yellow leaf curl virus, Watermelon mosaic virus 2 and Zucchini yellow mosaic virus.			
Diagnosis of Plant pathogens Symptomatology. Techniques of field monitoring and sampling. Isolation, identification and culture of viruses and viroids. Biological, serological and molecular techniques.	1	4	7
Total	3	16	14

Exam

Only the students enrolled in the academic year during which this module is provided, can have an intermediary exam during the time of teaching. The result of this intermediary exam remains valid for the whole academic year and concurs to the final evaluation of the student. The exam, as well as the intermediary exam, consist of an oral test with questions related to the lectures and laboratory classes, such as reported in the Didactic Regulation of the Bachelor Course in Agricultural Science and Technology (art.9) and in the syllabus (annex A).

The evaluation of the student is based on criteria previously fixed such as reported in the Annex A of the Didactic Regulation of the Bachelor Course in Agricultural Science and Technology.

The evaluation of the exam is expressed in thirtieths as average of the votations attended at the intermediary exam and at the final exam.

Support materials

- Personal notes of the lectures.

Reference material

- Giunchedi, Gallitelli, Conti, Martelli. Elementi di Virologia vegetale. Ed. Piccin. 2007.
- Belli G., Virus e virosi delle piante. Edagricole. 1992
- Conti M., D. Gallitelli, V. Lisa, O. Lovisolo, G.P. Martelli, A. Ragozzino, G.L. Rana, C Vovlas. I principali virus delle piante ortive. Bayer. 1996
- Matta A. Fondamenti di Patologia Vegetale. Patron Editore. 1996
- Goidanich G. Manuale di patologia vegetale. Edizioni Agricole Bologna. 1981.
- Atti Progetto POM A32

Consulting hours

All the afternoon possibly after a request of appointment.

Teaching procedures

Oral presentation supported by Power Point presentations, by the usage of blackboard and by documents prepared by the teacher.