

COURSE OF STUDY: Plant Medicine (LM69, MdP)
ACADEMIC YEAR: 2023-2024
ACADEMIC SUBJECT: Ornamental plant diseases (module of the integrated course in Green areas management and protection – 9 CFU)

 LAUREA MAGISTRALE
 MEDICINA DELLE PIANTE
 MASTER DEGREE
 PLANT MEDICINE


General information	
Year of the course	1 st year
Academic calendar (starting and ending date)	I semester – 2023 September 25th – 2024 January 19th (interruzione delle lezioni dal 13/11 al 24/11/2024 per lo svolgimento delle prove di valutazione intermedie, c.d. esonero) 2024 February 26th – June 14th (Pause 2023 November 13 th – 24 th , for midterm exam)
Credits (CFU/ETCS):	3
SSD	AGR/12 – Plant Pathology
Language	Italian (English will be used when required if foreign students will attend the course and mainly in the didactic material)
Mode of attendance	Not mandatory but suggested

Professor/ Lecturer	
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Department and address	Department of Soil, Plant and Food Sciences - first plexus, Plant Pathology Section, Third floor room n.1
Virtual room	Teams platform entry code g0689m3
Office Hours (and modalities: e.g., by appointment, on line, etc.)	From 9.00-13.00 from Monday to Friday according to an established appointment requested by phone or e-mail. Tutoring could be also on e-learning platforms (Teams) at different times by appointment. Other tutoring methods can be defined on demand.

Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
75	16	14	45
CFU/ETCS			
3	2	1	

Learning Objectives	The course, in the area of related and supplementary activities, aims to provide in-depth knowledge on abiotic and biotic diseases of ornamental species.
Course prerequisites	Basic knowledge on biology, botany, plant physiology, mycology, bacteriology, virology, plant pathology, diagnostic and plant protection.

Teaching strategies	The course topics will be treated with the help of <i>powerpoints</i> , working groups, study-cases, the critical analysis of scientific papers and with the support of external experts with seminar activities. Classroom, laboratory, and field exercises will be used in transferring competence on diagnostic tools. The self-direction, teamwork, self-assessment, and the use of technologies will be
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	<p>promoted.</p> <p>For foreign students (LLP-Erasmus, etc.), teaching material will be supplied in English, and the tutoring will be done in English.</p> <p>For students with disabilities and SLD, the teacher will adjust the teaching methods and teaching materials to the specific learning need.</p> <p>E-learning using public (eg Teams) platforms can be used, on demand as additional tutoring activities for working students, athletes and students with babies, as well as front-office activity</p>
Expected learning outcomes in terms of	Expected learning outcomes, knowledge and ability are indicated for each Dublin Descriptor (DD) according to the ones reported in the Art.4 of the Didactic Regulation of the master's degree course Plant Medicine
DD1 - Knowledge and understanding on:	<ul style="list-style-type: none"> ○ methods and techniques that can be used for the diagnostic assessment ○ methods and techniques usable to know and understand the main diseases of ornamental plants and the causes that underlie them, with regard to the species subject to interdisciplinary study. ○ methods and techniques usable to manage them in different production environments and in the different production phases from nursery to post-production
DD2 - Applying knowledge and understanding on:	<ul style="list-style-type: none"> ○ know how to recognize the main symptoms of disease on ornamental plants ○ knowing how to apply the main methods of phytopathological clinic ○ know how to define an appropriate management strategy based on the operational context ○ be aware of the effects of the prescriptive choices adopted on ecosystem services
Soft skills (DD3-DD5)	<ul style="list-style-type: none"> ● DD3 - Making informed judgments and choices At the end of the course, the students will be able to <ul style="list-style-type: none"> ○ carry out an appropriate anamnesis on real phytopathological cases ○ identify the most appropriate strategies for plant health, also being able to choose on the impact on social, ethical, environmental and sustainability factors ● DD4 Communicating knowledge and understanding At the end of the course, the students will be able to <ul style="list-style-type: none"> ○ communicate in oral and written forms using technical language, ○ participate to multidisciplinary working groups ○ communicate the reasons for the choices made on the process adopted on a technical and economic level and on a human and ethical levels ● DD5 Capacities to continue learning At the end of the course, the students will be able to <ul style="list-style-type: none"> ○ improve his/her proper knowledge consulting scientific and technical papers and websites to deepen and update his/her knowledge on ornamental plant diseases ○ critically analyze the contents of presentations and communications in technical and scientific meetings <p>Expected learning outcomes, as knowledge and ability, are reported in the Art.4 of the Didactic Regulation of the course Plant Medicine (expressed by European Descriptors)</p>
Syllabus	
Content knowledge	<p>General part:</p> <ul style="list-style-type: none"> ▪ Aim of the course - definition and tasks of plant pathology in the field of ornamentals- Concept of disease, etiology - Symptoms and visual diagnosis (No.2 hours).

	<p>Biotic and abiotic diseases of ornamental plants (No. 8 hours)</p> <ul style="list-style-type: none"> ▪ Abiotic, bacterial, fungal, phytoplasma and viral diseases: general information, taxonomy, relations with the host, symptoms, diffusion and transmission; diagnosis, prophylaxis and treatment. ▪ Sanitary problems related to the marketing of plants and infectious diseases present in other countries on cultures typical of geographical areas other than Italy; diffusion risks related to propagation materials: addressed in specific seminars led by experts <p>Protection of ornamental species (No. 2 hours)</p> <ul style="list-style-type: none"> ▪ The peculiarities of the protection strategies of ornamental plants with respect to the general aspects and the effects on non-target species and the environment ▪ Insights on recent trends towards sustainable defense models related to the different production systems (integrated and organic) <p>Multidisciplinary case studies (No. 4 hours): <i>Phalaenopsis, Lisianthus, Curcuma alismatifolia, Trachelospermum jasminoides, Lantana camara, Photinia x fraseri, lawns, Proteaceae, Bedding plants (garden herbs, e.g. Tagetes, dwarf sunflower, etc.).</i></p> <p>Hands-on (laboratory, workshops, working groups, seminars, field trips) (No. 14 hours) The student will be able to apply the main methods of visual inspection and collection and management of samples, isolation and cultivation of pathogens, and to understand, apply and compare the main management methods applied in the field of ornamentals. Group activity, critical analysis and comparison with the expertise and self-assessment will be a further work tool. The technicians will help in hands-on carried on in the greenhouses, in the in vitro culture laboratories, in the diagnostic, bacteriology, mycology, virology and plant health laboratories of the DISSPA.</p>
Texts and readings	- Garibaldi et al., 2017. Malattie delle Piante ornamentali -Edagricole
Notes, additional materials	Scientific paper supplied by the professor Materials in English are additional and can be reference texts for incoming international students Scientific papers supplied by the professor
Repository	Powerpoints are not usable as learning material but can help the student during own study and in the using of suggested materials (Book, scientific papers, website). These together with the works prepared by the students, bibliographic reviews and anything deemed useful are available on the teams platform, access code g0689m3 in the folder identified with AA2023-2024, starting from the beginning of the didactic activity and it will remain available to students even beyond the end of the academic year of reference
Assessment	
Assessment methods	As reported in the Teaching Regulations of the CdLM MdP (Art. 4 and annexes 1 and 2) the exam consists of an oral exam, with the presentation of a project work on the topics developed during the entire course. Only the students enrolled in the academic year during which this module is provided, can have a midterm exam in the pause time (22/04/2024 - 3/05/2024). The result of it remains valid for the whole academic year and concurs to the final evaluation of the student (in proportion to the ECTS evaluated during the midterm exam). The exam, as well the midterm exam, consists of an oral test, including the presentation of a project work, with questions related to the didactic activities, such as reported in the Didactic Regulation in Plant Medicine (art.4) and in the

	<p>syllabus (annex 1). Overall, three questions will compose the exam and each student will also have to discuss the work carried out independently (project work) which cannot exceed 7 minutes in the presentation.</p> <p>For incoming students with international mobility projects, the mid-term evaluation tests and the exam can be held in English, and, where required, as a written test with three open-ended questions, in addition to the discussion of the work done independently (project work).</p>
Assessment criteria	<p>For each expected learning outcome indicated above, it is detailed below what the student is expected to know or be able to do and at what level in order to demonstrate that a learning outcome has been achieved and at what level</p> <ul style="list-style-type: none"> • Knowledge and understanding <ul style="list-style-type: none"> ○ the causes of ornamental plant diseases and disease relationships • Applied knowledge and understanding: <ul style="list-style-type: none"> ○ The mastery in the application of the different ones for the correct identification of the cause of the disease will be assessed • Making judgments: <ul style="list-style-type: none"> ○ On phytopathological case study by identifying the most appropriate technical solution for the problem solving • Communication skills: <ul style="list-style-type: none"> ○ Personal ability to communicate orally with specific reference to technical vocabulary in Italian and English ○ The ability to organize the acquired knowledge in the form of presentation and articulation of speech for didactic-training purposes. • Ability to learn: <ul style="list-style-type: none"> ○ applicable protocols and techniques on ornamental plants to evaluate plant health
Final exam and grading criteria	<p>The final mark is given out of thirty. The exam is considered passed when the grade is greater than or equal to 18. The final mark will consider the theoretical and practical knowledge acquired, the ability to apply the knowledge, autonomy of judgment, communication skills and on the ability to integrate the acquired knowledge in a project work. The evaluation of the student is based on criteria previously fixed such as reported in the Art.4 of the Didactic Regulation of the Master's degree Course in Plant Medicine.</p>
Further information	
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