General Information	
Academic subject	Innovative and advanced control strategies of plant feeders
Degree course	Innovation Development in Agrifood Systems (CLM IDEAS)
Curriculum	Innovative and advanced strategies for plant protection
ECTS credits	3 ECTS (2 ECTS Lectures + 1 ECTS Laboratory)
Compulsory attendance	No
Language	English

Subject teacher	Name Surname	Mail address	SSD
	Giovanni Tamburini	giovanni.tamburini@uniba.it	AGR/11

ECTS credits details			ETCs
Basic teaching activities	Plant Protection disciplines		3

Class schedule	
Period	First semester
Year	2021/2022
Type of class	Lecture - workshops

Time management	
Hours	75
In-class study hours	30
Out-of-class study hours	45

Academic calendar	
Class begins	-
Class ends	-

Syllabus	
Prerequisites/requirements	
Expected learning outcomes	*Knowledge and understanding* o Knowledge and understanding of the interactions between plant feeders and abiotic and biotic factors of agroecosystems. o Knowledge and understanding of the main innovative and advanced monitoring and control strategies of plant feeders. *Applying knowledge and understanding* o Ability to select the best monitoring and management strategies to control plant feeders in different contexts. *Making informed judgements and choices* o Ability to design plant protection strategies and to apply treatments able to limit the development of plant feeders in compliance with the European law and considering potential impacts on the environment. *Communicating knowledge and understanding* o Ability of describing innovative and advanced monitoring and control strategies of plant feeders. *Capacities to continue learning* o Ability of updating the own knowledge on new monitoring and control strategies of plant feeders.

	The results of the expected learning, in term of knowledge and ability, are listed in the Annex A of the Didactic Regulation of the Course (expressed by the European descriptors of the study title).
Contents	• Challenges for the control of plant feeders in modern food production systems: to limit agriculture impacts on the environment, to manage plant feeders' pesticide resistance, to limit and manage invasions of alien organisms and impacts of climate change. • Interactions between plant feeders and abiotic and biotic factors of agroecosystems. • Regulatory provisions on pesticides and biopesticides with a focus on the European Union. • Innovative crop management strategies for sustainable pre-and post-harvest plant protection: integrated pest management, integrated crop management, diversified farming practices to sustain and enhance biodiversity, biological and microbiological pest control (technical and legislative evolution of classic biological control, augmentative and conservation pest control, application of entomopathogenic fungi, nematodes, bacteria and viruses), biopesticides. • Innovative and advanced technologies for plant protection: Agriculture 4.0, Decision Support Systems (DSS), forecasting models for plant feeders, biotechnological techniques for the control of plant feeders (RNAi, use of semiochemicals, microbial symbionts, UV-radiations, genetically modified crops, sterile male technique and others)
Course program	
Bibliography	• Notes of the lectures • presentations and other didactic material provided during the lessons
Notes	Students will be provided with a copy of all presentations utilized for lectures, including also those eventually needed for the practical activities.
Teaching methods	The subjects will be provided with several examples and illustrations by means of Power Point presentations, movies, practical drills in the classroom and laboratory.
Assessment methods	Students enrolled in the academic year during which this module is offered can have an intermediary exam during the teaching period of module. The result of this intermediary exam remains valid for the whole academic year and concurs to the final evaluation of the student. The intermediary exam will be given on the subjects treated during the lessons and the practical activities. The evaluation of the intermediary exam is expressed in thirtieths. At the end of the module teaching period, the students, who passed positively the intermediary exam, can give the final exam concerning on the subjects treated during the lessons and the practical activities since the intermediary exam. Students who did not pass or give the intermediary exam will be examined on the whole subjects treated during the lessons and the practical activities. The intermediary and

	the final exams consist of an oral examination (written if necessary). The evaluation of the student is based on criteria previously fixed such as reported in the Annex A of the Didactic Regulation of the Course.

Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are.	• *Knowledge and comprehension ability*
	  ○ Description of the interactions between plant feeders and abiotic and biotic factors of agroecosystems and the main innovative and advanced monitoring and control strategies of plant feeders.
	• *Knowledge and applied comprehension ability*
	  ○ Description of the best monitoring and management strategies to control plant feeders in different contexts.
	• *Autonomy of judgement*
	  ○ Formulation of potential plant protection strategies and treatments able to limit the development of plant feeders considering potential impacts on the environment and in compliance with the European law.
	• *Communication skills*
	  ○ Exhaustive description and illustration, with appropriateness of term, richness of examples the innovative and advanced monitoring and control strategies of plant feeders.
	• *Learning ability*
	  ○ Adaptation of the basic cognitive tools acquired during the module in order to explain and solve numerous applied problems and diversified case of study

Further information	**Visiting hours** Wednesday, from 11.30 am to 1.30 pm, after a request of appointment.