



General information	
Academic subject	Entomology
Degree course	Master's degree in Natural Science L-32
Academic Year	Second
European Credit Transfer and Accumulation System (ECTS)	6 ECTS
Language	Italian
Academic calendar (starting and ending date)	October 2021-January 2022
Attendance	Strongly recommended

Professor/ Lecturer	
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Department and address	Ex Faculty of Agriculture, building of the central library, fifth floor
Virtual headquarters	Teams access code: psz7jeh
Tutoring (time and day)	From Monday to Friday by appointment via e-mail or telephone.

Syllabus	
Learning Objectives	The course aims to provide knowledge on phylogeny, classification, morphology, anatomy, physiology, reproduction and development of insects.
Course prerequisites	Recommended the contents of the Zoology and Animal Ecology courses
Contents	Importance of diversity and insect protection. Morphology and organization of the soma. Anatomy and physiology. Sense organs and behavior. Insect reproduction. Development and biology. Systematics and Taxonomy of Insects. Evolution and biogeography. Insects and man. Hypogean and aquatic lifestyle insects. Insects and plants. Insect society. Predation and parasitoidism. Insect defense strategies. Medical and veterinary entomology. Entomology methods: capture, conservation, collection and identification of insects.
Books and bibliography	-Beutel R.G., Friedrich F., Si-Qin Ge, Xing-Ke Yang 2014 - Insect Morphology and Phylogeny, A textbook for students of entomology. Walter de Gruyter GmbH, Berlin/Boston, ISBN 978-3-11-026263-6 e-ISBN 978-3-11- 026404-3, 516 pp. -Peter J. Gullan, Peter S Cranston- Zanichelli 2006. Lineamenti di entomologia, ISBN 9788808070395.
Additional materials	Notes in English of the lessons, distributed as a .pdf document at the beginning of the course.

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
150	48		102
ECTS			
6	5	1	
Teaching strategy		Teaching is delivered in technology-enhanced mode (distance teaching integrating frontal teaching) or blended learning (mixed, frontal and distance teaching).	
		Handouts in English are given at course kick-off, with ppt and .pdf presentations.	
Expected learning outcomes			

<p>Knowledge and understanding on:</p>	<p>The student must understand the role of insects as the main constituents of ecosystems and the positive or negative relationship with man in: ecosystem services (pollination, manure processing, decomposition of carcasses and as a food source for animals); in scientific use (as bioindicators, as established by environmental quality, as controlled by biodiversity); in commercial use (silk, dyes, inks and waxes); in the conservation of insects (invasions and introduction of insects, natural expansion of areas). Know the morpho-specific and biological characteristics typical of insects. Recognize the main taxes and common insect species in natural and artificial environments.</p>
<p>Applying knowledge and understanding on:</p>	<p>The student must: go back from the morphology to the biology and lifestyle of the Taxa studied; discuss the morphological, biological and life cycle specializations in relation to man and living species; reunite the youth stadiums with the corresponding adults; acquire the basic technical knowledge to collect, sample, preserve, exhibit and mount insects or important parts of their bodies on a slide, in order to share the study of insects. The different interpretations and syntheses developed during the lessons will also be compared in the classroom regarding the topics offered by the subject.</p>
<p>Soft skills</p>	<ul style="list-style-type: none"> • <i>Making informed judgments and choices</i> The student will have to acquire skills in solving complex problems and in rigorous and independent analysis in Entomology. • <i>Communicating knowledge and understanding</i> The student will have to acquire his own scientific vocabulary, and the correct entomological terminology to independently share the topics covered during the course with a strong conceptual connotation of the morphology, phenology and parameters that regulate the life of insects. The student will have to acquire his own scientific vocabulary, and the correct entomological terminology to independently share the topics covered during the course with a strong conceptual connotation of the morphology, phenology and parameters that regulate the life of insects. • <i>Capacities to continue learning</i> The student will acquire the ability to interpret the role of an important part of biocoenosis, connecting the fundamental concepts of this teaching with those of other subjects of study. This ability will also be induced by questioning and interacting with students during the lessons.
<p>Assessment and feedback</p>	
<p>Methods of assessment</p>	<p>The exam consists of an oral exam on topics developed during class and theoretical-practical hours in the classroom and in the laboratory as reported in the Didactic Regulations of the Master's Degree Course in Natural Science</p>
<p>Evaluation criteria</p>	<ul style="list-style-type: none"> • <i>Knowledge and understanding</i> Ability to recognize and discuss the general characteristics of insects and their main Taxa. We insist on the structure of matter rather than on the details of the species, and on the connection between concepts of entomology, on strategy and vision rather than on the notion. • <i>Applying knowledge and understanding</i> The student must be able to describe entomological topics with language properties by proposing their application to the resolution of real problems. The ability to draw on theory to hypothesize solutions to real problems will lead to a very positive evaluation of the exam.

	<ul style="list-style-type: none"> • <i>Autonomy of judgment</i> The ability to independently identify links with other disciplines of the course of study will lead to a very positive assessment of the exam • <i>Communicating knowledge and understanding</i> The student who has acquired the ability to express concepts and formulate interpretations in Entomology with clear exposition and the appropriate use of the terminology learned during the course, and who proves to be able to divulge or share the knowledge acquired will increase his final mark, with the possibility of achieve the maximum mark. • <i>Communication skills</i> The student who proves to be able to independently acquire further knowledge in Entomology even with an interdisciplinary access, will have recognition through an increase in the final mark up to the maximum. • <i>Capacities to continue learning</i> The student, who proves to be able to autonomously acquire further knowledge in Entomology even with an interdisciplinary access, will be able to have a recognition through an increase in the final grade up to the maximum.
<p>Criteria for assessment and attribution of the final mark</p>	<p>The exam consists of an oral test on the topics developed during the theoretical and theoretical-practical lesson hours in the classroom and in the laboratory. The evaluation of the student's preparation takes place based on pre-established criteria, as detailed in the Degree Course Didactic Regulations.</p> <p>For students enrolled in the year of the course in which the teaching is carried out, a partial test is provided, based on topics from lessons and exercises carried out in the period preceding the test itself (about half of the program of each module). The positive results of both modules contribute to the evaluation of the final exam and are valid for one academic year.</p> <p>For these students, the evaluation of the profitable exam is expressed as the average between the mark given to the partial and that of the profitable exam.</p> <p>The exam for foreign students can be done in English.</p>
<p>Additional information</p>	