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COURSE: **Entomology and Zoology**

ACADEMIC YEAR: **2016-2017**

TYPE OF EDUCATIONAL ACTIVITY: (Basic, Characterizing, Affine, Free choice, Other): **Characterizing**

TEACHER: **Donatella Battaglia**

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website:

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mobile (optional):

Language: italien

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ECTS: (lessons e tutorials/practice) 9	n. of hours: (lessons e tutorials/practice) 80 h	Campus: Potenza/Matera Dept./School: Potenza Program:	Semester: first
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**EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES**

Sintetizzare in lingua inglese i contenuti riportati nella scheda in lingua in italiana.

The course of Entomology and Zoology addresses issues related to the biology and the systematics of invertebrates. The main objective of this course is to provide the foundation for the study of integrated pest management, which will be addressed by the students as part of the Master in Agricultural Science and Technology. The student must therefore acquire an overview of the structure and functions of animal organisms in general and in particular on insects. The student will also acquire the concept of evolution and understand the basis of animal adaptations to the environment. The student will also have to know the basics of ecology and deepen in particular the parts related to trophic relationships. Finally, it is expected that the student will acquire a minimum knowledge for pest identification and control. More detailed information will be reserved for those taxonomic groups not included in the program of the course of Integrated pest management, for example insects important for human health, such as mosquitoes, and insects used as indicators for the quality of water and soil.

At the end of this course, the student will be able to study, in an autonomous way, animal biology and entomology topics. He will be able to connect and rework the information obtained during the course of Entomology and Zoology and other courses. He will develop his communication skills. He will be able to identify the main insect taxa.

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**PRE-REQUIREMENTS**

Sintetizzare in lingua inglese i contenuti riportati nella scheda in lingua in italiana.

The student must have basic knowledge of chemistry; he must know the cell structure; he must have basic knowledge of genetic.

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**SYLLABUS**

Sintetizzare in lingua inglese i contenuti riportati nella scheda in lingua in italiana.

- Animal taxonomy, phylogeny and evolution; organization of animal body (symmetry, tissues, coelomic cavity); structural plan of the various animal phyla (with particular regard to nematodes, molluscs and arthropods), the insect morphology, animal tissues (8 hours).
- The animal organisms functions (feeding and digestion, respiration, circulation, excretion, movement, nervous and hormonal coordination) with special reference to insects (8 hours).
- The reproduction, embryonic and post-embryonic development in animals, particularly with regard to insects; preimaginal characteristics of insect instars and types of metabolia



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(9 hours).

- Intraspecific communication (pheromones, kairomones, sounds, etc.) and animal societies. Basic information on ecology and biological control of harmful species (7 hours).
- Pest species not belonging to the phylum of arthropods. Basic information on pest management (8 hours).  
Main characteristics of insect orders: Protura, Diplura, Thysanura, Collembola, Ephemeroptera, Odonata Blattoidea, Mantoidea, Isoptera, Dermaptera, Orthoptera, Hemiptera, Thysanoptera, Neuroptera, Coleoptera, Hemiptera, Thysanoptera, Neuroptera, Coleoptera (24 hours) .
- Observation of zoological material in the laboratory (16 hours).

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#### TEACHING METHODS

Riportare una (o più) delle seguenti voci: Theoretical lessons, Classroom tutorials, Laboratory tutorials, Project works, Technical visits, Other activities (specificare).

Se utile, riportare ulteriori dettagli, come specificato nell'esempio riportato nella scheda in lingua in italiana.

This course includes 80 hours of teaching. In particular it provides **64 hours of theoretical lectures** and 16 hours of laboratory. The lectures also include the projection of short films.

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#### EVALUATION METHODS

Riportare una (o più) delle seguenti voci: Intermediate verifications, Written examination, Discussion of a project work, Practical test, Oral examination, Other methods (specificare).

Sintetizzare in lingua inglese i contenuti di dettaglio riportati nella scheda in lingua in italiana.

The exam is divided 4 parts: a written test on general part of the program(excluding insect taxonomy); the preparation of a term paper on a specific topic, agreed with the teacher; a practical test for recognition of specimens of various insect orders, families and species; an oral examination. The final grade is derived from the average of grades obtained in all examination sections.

The written exam consists of 20-30 questions, some multiple choice, other open-ended questions. from the average of grades obtained in all examination sections.

The written exam will assess the content knowledge and reasoning skills of the student (the test has a duration of 2 hours); The term paper aims to assess the ability of self-study and the ability to connect the different knowledge;

The practical test is intended to evaluate the ability to recognize different insect taxa; The oral examination has the aim to evaluate the knowledge of insect taxonomy and the ability to connect knowledge concerning the systematic with those acquired in the general part of this course. The written test for the part about the open-ended questions, the term paper and the oral exam are also used to assess communication skills

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#### TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Riportare in lingua inglese i contenuti riportati nella scheda in lingua in italiana.

Books:

L. Masutti, S. Zangheri - Entomologia generale e applicata. CEDAM Editor

E. Tremblay – Entomologia applicata. Volume primo: generalità e mezzi di controllo. Liguori Editor

Handouts and other material provided by the teacher during the course.

Slides.

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#### INTERACTION WITH STUDENTS

Riportare in lingua inglese i contenuti riportati nella scheda in lingua in italiana.

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At the beginning of the course, after describing the course objectives, program and methods of verification, the teacher collects the list of students who intend to attend the course, together with name and email address. The teacher gives information on the study material. The additional material, in electronic format, or indications of websites where you can find useful material, will be sent to each student, during the course, via e-mail.

Consulting hours: Tuesdays, Wednesdays and Thursdays from 15.30 to 17.00 pm in the teacher's studio. In addition to weekly reception, the teacher is available at all times for a contact with students through e-mail and by appointment.

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**EXAMINATION SESSIONS (FORECAST)<sup>1</sup>**

Riportare le date inserite nella scheda in lingua italiana

***25/01/2017; 22/02/2017, 22/03/2017, 28/04/2017, 24/05/2017, 28/06/2017, 19/07/2017, 27/09/2017, 25/10/2017, 22/11/2017; 13/12/2017***

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SEMINARS BY EXTERNAL EXPERTS    YES     NO

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FURTHER INFORMATION

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<sup>1</sup> Subject to possible changes: check the web site of the Teacher or the Department/School for updates.