



ACADEMIC YEAR: **2019-2020**

COURSE: **APPLIED ENTOMOLOGY** (module of Integrated Pest Management)

TYPE OF EDUCATIONAL ACTIVITY: **Characterizing**

TEACHER: **Prof. Paolo Fanti**

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Language: **ITALIAN**

ECTS: **6** (5 lessons
and 1 tutorials
/practice)

n. hours: **56**
(40 lessons and 16
tutorials/practice)

Campus: **Potenza**
Department/School: SAFE
Program: Scienze e Tecnologie Agrarie

Semester: I & II

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

Key Topics: Biological and ecological features of the insect pests, their economical impacts on agricultural crops, key factors affecting their population dynamics, methods and techniques of integrated and biological control. At the end of the course, students should be able to: a) Identify insect pests affecting the main agricultural crops; b) take decisions on the following issues: if, when and how to apply integrated control techniques to reduce the damage by insect pests.

- **knowledge and understanding:** life cycles, biological and ecological features of insect pests and related damages to main crops. Main biotic and abiotic factors affecting population dynamics of insect pests. Methods and techniques in Biological and Integrated Pest Control
 - **applying knowledge and understanding:** ability to sample and identify the insect pests affecting a defined agroecosystem, evaluate the main biotic and abiotic factors affecting their population dynamics and define the most appropriate and sustainable IPM techniques to be applied
 - **making judgements:** assess, through a decision-making approach, if, when and how to apply IPM techniques to reduce insect pests damage below Economic Injury Levels
 - **communication skills:** ability to communicate on topics related to Biological Control and IPM, through scientific, technical or advisory reports, and in more general terms, to be able to disseminate scientific and technical knowledge
 - **learning skills:** ability to self-update and upgrade the personal skills and knowledge on IPM topics through scientific and technical sources (papers, books, seminar meetings, etc.), by careful judgment and judicious evaluation of the available information sources
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PRE-REQUIREMENTS

Previous attending of the courses of *Zoologia e Entomologia generale* (General Zoology and Entomology), *Botanica* (Botany), and *Agronomia* (Agronomy) is strongly suggested

Syllabus

Basic concepts of Integrated Pest Management in agriculture (4 hours of lessons).

Main factors affecting insect population dynamics. Decision-making: Economic Thresholds and Economic Injury Levels; phenological models and forecasting; monitoring methods and techniques (also using remote sensing techniques). (4 hours of lessons + 4 hours tutorial/practice).

Biological control agents and their biological and ecological features, rearing methods and techniques, main biological control methods and techniques. Microbiological control agents and their use (8 hours of lessons).

Host plant resistance and related biotechnological strategies and methods (4 hours of lessons).

Chemical and biotechnical control strategies and methods (4 hours of lessons).

Biological and ecological features of the insect pests affecting orchards and gardens, horticultural, cereals, leguminous crops, and of the storage and post-harvest pests (16 hours of lessons and 16 hours tutorial/practice)

TEACHING METHODS

The course activities total 56 hours, 40 of which as theoretical lessons and 16 hours as classroom/laboratory tutorials.

EVALUATION METHODS

At the end of the first semester students will be offered to attend an intermediate test. The test, written with both open-ended and closed-ended questions, will evaluate the comprehension on the basic topics of the first



semester and it will amount to 40% of the final grade. Also, students will be asked to submit, before the end of the course, two written reports on scientific topics related to IPM (chosen by the student in a list of proposals), to test their ability to analyze and address complex scientific issues in a rational way (these reports will amount to 10% of the final grade). At the end of the course a final exam will evaluate through an interview the ability to connect and discuss the course main topics and the decision-making aspects of IPM.

TEXTBOOKS AND OTHER ON-LINE EDUCATIONAL MATERIAL

B. Baccetti e altri – *Manuale di Zoologia Agraria* – Antonio Delfino editore
G. Viggiani – *Lotta biologica e integrata nella Difesa Fitosanitaria*, vol.2- Liguori Editore
A. Pollini – *manuale di Entomologia Applicata*. Edagricole
D. Dent – *Insect Pest Management* – CABI
Other educational material will be given to the students during the course

INTERACTION WITH STUDENTS

Visiting hours: every Monday from 15 to 16, Tuesday from 18 to 19, Thursday from 17:30 to 18:30 and Friday from 11:30 to 12:30, students can ask to be received for additional information and explanations, at the room 3A 307. It is possible (but not assured) to be received in other hours, by previously checking this possibility through e-mail. Also, any student can ask additional explanations through e-mail, addressing at paolo.fanti@unibas.it.

The exact dates for the exam sessions can be found at the following link (sorry, at the present time, only in italian): <https://unibas.esse3.cineca.it/ListaAppelliOfferta.do;jsessionid=>

Please note that the final exam is for both the modules of the course so in order to find the exam session check out the link for “Difesa Integrata”

SEMINARS BY EXTERNAL EXPERTS YES NO

ADDITIONAL INFORMATION
