

## Entomology (YEAR III, SEMESTER IIIrd)

Credit value (ECTS) 4

### Course category

Domain (Imposed)

### Course holder:

Prof.dr. Mihai Tălmăciu

### Discipline objectives (course and practical works)

Creating the necessary fundamental knowledge and understanding specific to operation of with the concept of entomology, while discipline aims to identify the students with the main the morphological and anatomical characters of insects biology, ecology and combating the main agricultural plant pests.

- Acquaint students with the morphology and anatomy of insects, insect biology and ecology.
- Getting started forecasting and warning of the chemical treatments;
- Knowledge of the main methods for preventing and pest control;
- Knowledge the main pests in orchards, vineyards, vegetable crops, industrial crops and cereals.
- Knowing the types of agro-availability of pesticides, pesticide ownership of the main groups used in pest during the growing season and the main pest control schemes.

### Contents (syllabus)

Course (chapters/subchapters)
<b>Introduction</b> : Object of agricultural entomology. Short history of development worldwide and in our country; Link to other sciences.
<b>CAP.1. The general characteristics of insects:</b> The morphology of the insect body; Anatomy and physiology of insects; Getter device.
<b>CAP.2. The insects biology:</b> The reproduction from insects; Developing the insects; Generations and evolutionary cycle; Diapause.
<b>CAP.3. The insects ecology:</b> Factors who influence of the development of insects; The spread of the insects;
<b>CAP.4. Estimating the damage and pest damage:</b> The phytosanitary control; Harm and damage caused by crop pests.
<b>CAP.5. Prognosis and warning:</b> Elaboration of forecasts; Warning applying the treatments
<b>CAP.6. The general methods for combating the animal pests:</b> Phytosanitary quarantine measures; Agrophytotechnical methods; Mechanical methods; Physical methods;
<b>CAP. 7. Biological means.</b>
<b>CAP. 8. The classification of the animal pests.</b>

Practical works
The insect morphology
The insect anatomy
The insect biology

The insect ecology
Key dichotomy to determine the main orders of insects
Develop graphic warning of the chemical treatments.
Methods of prevention and pest control

### Bibliography

1. Filipescu C., Georgescu T., Tălmăciu M., 1989 - Practical Entomology. General Part. Internal use, Iași.
2. Georgescu T., Tălmăciu M., 1994 - Plant Protection vineyards and orchards. Course of Entomology. The special part and control technologies. Internal use, Iași.
3. Perju T., 1995 - Agricultural entomology, integrated agro-protection component. Publisher Ceres, Bucharest.
4. Tălmăciu M., Georgescu T., Badeanu Marinela, 1998 - Entomology. The special part. Internal use, Iași.
5. Tălmăciu M., 2002 - Protecția plantelor - Entomology, ongoing internal use. U.S.A.M.V. Iași.

### Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Written examination	Knowledge and understanding of the concepts contained in progress	70%
Seminar / lab	Practicing the use of sources of information, preparation and presentation of reports	30%

### Contact

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## Entomology (YEAR III SEMESTER IV)

**Credit value (ECTS) 3**

### Course category

Domain (Imposed)

### Course holder:

**Prof.dr. Mihai Tălmăciu**

### Discipline objectives (course and practical works)

Theoretical and practical knowledge of the groups of pests affecting cultivated plants or spontaneous, warning, prevention and pest control.

The ability to identify, formulate, explain problems and propose specific entomology and interpret coherently solving them.

Professional development through activities supporting essays on various topics specific discipline, manifesting positive and responsible attitudes towards science, developing interest in the application of biological protection technologies to protect crop science.

### Contents (syllabus)

Course (chapters/subchapters)
<b>The main pests of grain crops: habitat, description, biology, ecology, plants attacked, pest manner, measures to prevent and combat</b> nematodes wheat grains - <i>Anguina tritici</i> Steinb. ; Wheat thrips - <i>Haplodiplosis tritici</i> Kurdj. ; Bugs cereals - <i>Eurygaster</i> sp. and <i>Aelia</i> spp. ; Humpbacked beetle - <i>Zabrus tenebrioides</i> Goeze; Cărbușeii cereals - <i>Anisoplia</i> sp. ; Corn leaf weevil - <i>Tanymecus dilaticollis</i> Gyll. ; Corn borer - <i>Ostrinia nubilalis</i> Hb. ; Cutworm - <i>Scotia segetum</i> Schiff; Swedish bite - <i>Oscinella frit</i> L.; Yellow cereal fly - <i>Chlorops pumilionis</i> Bjerk
<b>The main pests in industrial crops: habitat, description, biology, ecology, plants attacked, pest manner, measures to prevent and combat;</b> Beet nematode - <i>Heterodera Schmidt schachtii</i> . ; Beet black aphid - <i>Aphis fabae</i> Scop. ; Beet flea dirt - <i>Chaetocnema tibialis</i> Ill. ; Beet weevil - <i>Bothynoderes punctiventris</i> Germ. ; Rățișoara beetle - <i>Tanymecus palliatus</i> F. ; Steppe caterpillar - <i>Loxostege L. sticticalis</i> ; Colorado beetle - <i>Leptinotarsa decemlineata</i> Say. ; Flax flea - <i>Aphthonia euphorbiae</i> Schrank. ; Flea hemp - <i>Psylliodes attenuator</i> Koch. ; Beetle earthy - <i>Opatrum sabulosum</i> L. ; Sunflower moth - <i>Homoeosoma nebulella</i> Hb.
<b>The main pests to forage plants: habitat, description, biology, ecology, plants attacked, pest manner, measures to prevent and combat:</b> red alfalfa beetle - <i>Phytodecta Brügg fornicator</i> ; Ladybug alfalfa - <i>Subcoccinella 24-dotted</i> L. ; Alfalfa root weevils - <i>Otiorrhynchus L. ligustica</i> ; Flowers of clover weevil - <i>apricans Apion</i> Herbst; Wasp clover seeds - <i>Bruchophagus gibbus</i> Boh; Louse green peas - <i>Pisum Acyrthosophon</i> Harr; Pea weevil - <i>Bruchus pisorum</i> L., bean weevil - <i>Acanthoscelides obsoletus</i> L.

**The main pests in vegetable crops in the field and shelter pests of plants cruciferous (cabbage, cauliflower) mole cricket** - *Gryllotalpa gryllotalpa* barking. ; Red cabbage bug - *Eurydema ornatum* L. ; Cabbage aphid gray - *Brevicoryne brassicae* L. ; Black cabbage flea - *Phyllotreta atra* F. ; Striped cabbage flea - *Phyllotreta nemorum* L. ; Galicollid weevil cabbage - *Ceuthorrhynchus pleurostigma* Marsh; Cabbage white butterfly - *Pieris brassicae* L.; Buha cabbage - *Mamestra brassicae* L. ; Moth - *Plutella maculipennis* Curt. ; Cabbage fly - *Delia brassicae* BChE; Nematode bulbs - *D. dipsaci* Kühn. ; Musca onions - *Delia antiqua* Meigs.

**Glasshouse crop pests: galicollid the root nematode** - *Meloidogyne incognita* Chitw. ; Galicollid flowers nematode - *Meloidogyne arenaria* Neal. ; Thrips plant emissions - *Heliethrips haemorrhoidalis* BChE. ; Greenhouse whitefly - *Trialeurodes vaporariorum* Westw.

**The main pests of tree plantations:** the trees red mite - *Panonychus ulmi* Koch. ; San José Scale - *Quadraspidiotus perniciosus* Comst. ; Woolly aphid - *Eriosoma lanigerum* Hausm. ; Green apple aphid - *Aphis trees* De Geer. ; Hairy beetle - *Epicometis hirta* Poda; May beetle - *Melolontha melolontha* L. ; Apple blossom weevil - *Anthonomus pomorum* L. ; Bud weevil - *Sciaphobus squalidus* Gyll. ; Careers crust - *Ruguloscolytus rugulosus* Ratz. ; Borer strains - *Cosus L. cosus*; Borer branches - *Zeuzera L. pyrina*; The worm apples - *Laspeyresia pomonella* L.; The worm plums - *Grapholitha funebrana* Tr.; Elbows green - frosted L. Operophtera; Bellied golden butterfly - *Euproctis L. chrysorrhoea*; Ring - *Malacosoma L. neustria*; Hairy caterpillar mulberry - *Hyphantria cunea* Drury; Musca cherries - *Rhagoletis cerasi* L.

**The main pest of vine plantations:** galicollid mite vine - *Eriophyes vitis* Nal. Phylloxera - *Phylloxera vastatrix* Planch. ; Vine mealy - *pulvinar Vitis* L. ; Shear - *Lethrus apterus* Laxmi. ; Marbled beetle - *Polyphylla Fullo* L. ; Green beetle vine - *Anoma solid* Er. ; Țigărarul - *Byctiscus Betulae* L. ; Grape moth (eudemisul) - *Lobesia botrana* Den. et Schiff; Cochilisul vine - *Eupoecilia ambiguella* Hb.

**The main pests in storage areas: habitat, description, biology, ecology, plants attacked, pest manner, measures to prevent and combat:** mite (spider) flour - *Acarus siro* L.; Meal worm or knurled - *Tenebrio L. molitor*; Gândăcelul flour - *Tribolium confusum* DUV. ; Beetle bread - *Stegobium L. paniceum*; Wheat weevil - *Sitophilus granarius* L.; Cereals gray moth - *Sitotroga cerealella* Oliv. ; Dried fruit moth - *Fruits interpunctella* Hb. ; Grey flour moth - *Anagasta kühniella* Zell.

### Practical works

**Recognition of the main pests of grain crops :** nematode wheat grains - *Anguina tritici* Steinb. ; Wheat thrips - *Haplorthrips Kurdj tritici*. ; Bugs cereals - *Eurygaster* sp. and *Aelia* spp. ; Humpbacked beetle - *Zabrus tenebrioides* Goeze; Cărbușeii cereals - *Anisoplia* sp. ; Corn leaf weevil - *Tanymecus dilaticollis* Gyll. ; Corn borer - *Ostrinia nubilalis* Hb. ; Cutworm - *Scotia segetum* Schiff; Swedish bite - *Oscinella frit* L.; Yellow cereal fly - *Chlorops pumilionis* Bjerk

**Recognition of the main pests in industrial plants;** Beet nematode - *Heterodera Schmidt schachtii*. ; Beet black aphid - *Aphis fabae* Scop. ; Beet flea dirt - *Chaectocnema tibialis* Ill. ; Beet weevil - *Bothynoderes punctiventris* Germ. ; Rățișoara beetle - *Tanymecus palliatus* F. ; Steppe caterpillar - *Loxostege L. sticticalis*; Colorado beetle - *Leptinotarsa decemlineata* Say. ; Flax flea - *Aphthonia euphorbiae* Schrank. ; Flea hemp - *Psylliodes attenuator* Koch. ; Beetle earthy - *Opatrum sabulosum* L. ; Sunflower moth - *Homoeosoma nebulella* Hb.

**Recognition of the main pests in forage plants:** alfalfa beetle red - *Phytodecta Brügg fornicator*; Ladybug alfalfa - *Subcoccinella 24-dotted* L. ; Alfalfa root weevils - *Otiorrhynchus L. ligustica*; Flowers of clover weevil - *apricans Apion* Herbst; Wasp clover seeds - *Bruchophagus gibbus* Boh; Louse green peas - *Pisum Acyrthosophon* Harr; Pea weevil - *Bruchus pisorum* L., bean weevil - *Acanthoscelides obsoletus* L.

**Recognition of the main pests in vegetable crops in the field and shelter pests of plants cruciferous (cabbage, cauliflower)** mole cricket - *Gryllotalpa Gryllotalpa* barking. ; Red cabbage bug - *Eurydema adorned* L. ; Cabbage aphid gray - *Brevicoryne brassicae* L. ; Black cabbage flea - *Phyllotreta atra* F. ; Striped cabbage flea - *Phyllotreta nemorum* L. ; Galicolă weevil cabbage - *Ceuthorrhynchus pleurostigma* Marsh; Cabbage white butterfly - *Pieris brassicae* L.; Buha cabbage - *Mamestra brassicae* L. ; Moth - *Plutella maculipennis* Curt. ; Cabbage fly - *Delia brassicae* BChE; Nematode bulbs - *D. dipsaci* Kühn. ; Musca onions - *Delia antiqua* Meigs.

**Recognition crop pests in greenhouses:** galicol the root nematode - *Meloidogyne incognita* Chitw. ; Galicol flowers nematode - *Meloidogyne arenaria* Neal. ; Thrips plant emissions - *Heliethrips haemorrhoidalis* BChE. ; Greenhouse whitefly - *Trialeurodes vaporariorum* Westw.

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**Recognition of the main pests in storage facilities:** mite (spider) flour - *Acarus siro* L.; Meal worm or knurled - *Tenebrio L. molitor*; Gândăcelul flour - *Tribolium confusum* DUV. ; Beetle bread - *Stegobium L. paniceum*; Wheat weevil - *Sitophilus granarius* L.; Cereals gray moth - *Sitotroga cerealella* Oliv. ; Dried fruit moth - *Fruits interpunctella* Hb. ; Grey flour moth - *Anagasta kühniella* Zell.

## Bibliografie

1. Georgescu T., 1990 – Course of Entomology. The general and special. Internal use, Iași.
2. Georgescu T., Tălmăciu M., 1995 – Practical Entomology. Internal use, Iași.
3. Georgescu T., Tălmăciu M., Alexa C., 2003 – Horticultural plant pests. Prevention and control. Publisher PIM, Iași.

4. Georgescu T., 2004 – Pests of trees and shrubs. Prevention and control. Publisher "Ion Ionescu de la Brad" Iași.
5. Georgescu T., 2006 – Horticultural entomology. Publisher "Dosoftei" Iași.
6. Ghizdavu I. și colab., 1997 – Agricultural Entomology. Didactic and Pedagogical R.A., Bucharest.
7. Perju T., 1995 – Agricultural entomology, integrated agro-ecosystem protection component. Publisher Ceres, Bucharest.
8. Roșca I., Oltean I., Mitrea I., Tălmăciu M., Petanec D.I., Bunescu H.Șt., Istrate Rada, Tălmăciu Nela, Stan C., Micu Lavinia Mădălina, 2011 – General and Special entomology treaty, Publisher Alpha MDN, Buzau
9. Tălmăciu Mihai, 2003 – Plant protection - Entomology Publishing "Ion Ionescu de la Brad" Iași.
10. Tălmăciu M., 2005 - *Agricultural Entomology*, Publisher Ion Ionescu de la Brad, Iași.

### Evaluation

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