

# ENTOMOLOGY (Specialization HORTICULTURE., IIth Year of study, Ith Semester)

**Credit value (ECTS): 5**

**Course category: mandatory**

**Course holder:**

Phd. MIHAI T LMACIU

## **Discipline objectives (course and practical works)**

- Students' knowledge of insect morphology and anatomy, insect biology and ecology.
- Notions of prognosis and warning of chemical treatments;
- Knowledge of the main methods of prevention and control of pests;
- Agrodisponibilitate knowledge of types of pesticides, pesticide acquisition of the main groups used during the growing season pest management.

## **Contents (syllabus)**

<b>Course (chapters/subchapters)</b>
1. General characteristics of insects: Morphology of the body in insects; Insect anatomy and physiology; The reproductive system.
2. Insect biology: Insect breeding; Insect development; Generations and evolutionary cycle; Diapause.
3. Insect ecology: Factors influencing insect development; The spread of insects
4. Estimation of damages and damages caused by pests: Phytosanitary control; Damage and damage caused by pests of crop plants.
5. Forecast and warning: Developing forecasts; Warning of the application of treatments
6. General methods of combating animal pests: Phytosanitary quarantine measures; agrofitechnical methods; mechanical methods; physical methods;
7. Biological means
8. Classification of animal pests

<b>Practical works</b>
1. Morphology of insects
2. Anatomy of insects
3. Insect biology
4. Ecology of insects
5. The dichotomous key for determining the main orders of insects
6. Elaboration of the chart of warning of chemical treatments.
7. Methods for the prevention and control of pests

## **Bibliography**

1. Georgescu T., 1990 - Entomology course. General and special part. Internal use, Iasi.
2. Georgescu T., T Imaciu M., 1995 - Practical works of Entomology. Internal use, Iasi.
3. Georgescu T., T Imaciu M., Alexa C., 2003 - Pests of horticultural plants. Prevention and control. PIM Publishing House, Ia i.
4. Georgescu T., 2004 - Pests of fruit trees and shrubs. Prevention and control. "Ion Ionescu de la Brad" publishing house, Iasi.
5. Georgescu T., 2006 - Horticultural entomology. "Dosoitei" Publishing House, Ia i.

## **Evaluation**

<b>Evaluation form</b>	<b>Evaluation Methods</b>	<b>Percentage of the final grade</b>
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Course	Exam: Test with various items	70%
	presence	
Practical works	Oral, case study, investigation, evaluation during the semester	30%

**Contact**

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**TEACHING DISCIPLINE: ENTOMOLOGY (Specialization HORTICULTURE., IIth Year of study, IIth Semester)**

**Credit value (ECTS): 3**

**Course category: mandatory**

**Course holder:**

Phd. MIHAI T LMACIU

**Discipline objectives (course and practical works)**

- The ability to identify, formulate, explain problems specific to entomology and to propose and interpret coherently solutions for solving them.
- Professional development through activities of supporting reports on various topics specific to the discipline, showing positive and responsible attitudes towards the scientific field
- Developing interest in applying biological protection technologies to protect crops in the scientific field.

**Contents (syllabus)**

Course (chapters/subchapters)
<p>1. The main pests in the tree plantations: The red mite of the trees - <i>Panonychus ulmi</i> Koch. ; Hair loss - <i>tephanitis pyri</i> F. ; Parrots in San José - <i>Quadraspidotus perniciosus</i> Comst. ; The plum turtle of the plum - <i>Parthenolecanium corni</i> Bché. ; Woolly Parrots - <i>Eriosoma lanigerum</i> Hausm. ; The green apple wedges - <i>Aphis pomi</i> De Geer The black cockroach of the offspring - <i>Capnodis tenebrionis</i> L.; The hairy cockroach - <i>Epicometis hirta</i> Poda; May beetle - <i>Melolontha melolontha</i> L. ; Apple blossom flower - <i>Anthonomus pomorum</i> L. ; Fruit buzzard - <i>Rhynchites baccus</i> L. ; The bud of the buds - <i>Sciaphobus squalidus</i> Gyll. ; Bark caries - <i>Ruguloscolytus rugulosus</i> Ratz. ; Black plum wasp - <i>Haplocampa minute</i> Christ. ; Wasp of apples - <i>Haplocampa testudinea</i> Klug. ; Cherry wasp - <i>Caliroa limacina</i> Retz. ; Stalker - <i>Cosus cosus</i> L.; The branch advisor - <i>Zeuzera pyrina</i> L.; Apple leaf moth - <i>Yponomeuta malinella</i> Zell. ; Apple worms - <i>Laspeyresia pomonella</i> L.; Pear worms - <i>Laspeyresia pyrivora</i> Danil; Plum worms - <i>Grapholitha funebrana</i> Tr. ; The green quail - <i>Operophtera brumata</i> L.; Butterflies with golden abdomen - <i>Euproctis chrysorrhoea</i> L.; Inelarul - <i>Malacosoma neustria</i> L.; Cherry fly - <i>Rhagoletis cerasi</i> L.; Hairy caterpillar mite - <i>Hyphantria cunea</i></p>
<p>2. Main pests of vines: Gallic mite of the vines - <i>Eriophyes vitis</i> Nal. ; Vine mite - <i>Phyllocoptes vitis</i> Nal. ; Phylloxera - <i>Phylloxera vastatrix</i> Planch. ; The turtle weasels of the calf - <i>Pulvinaria vitis</i> L. ; Shearwater - <i>Lethrus apterus</i> Laxm. ; Marbled beetle - <i>Polyphylla fullo</i> L. ; Green beetle calf - <i>Anomalous solid</i> Er. ; Cigar - <i>Byctiscus betulae</i> L. ; Grape moth (eudemis) - <i>Lobesia botrana</i> Den. and Schiff; Veal moth (Sparrowhawk) - <i>Sparganothis pilleriana</i> Den et Schiff; Vine cochilis - <i>Eupoecilia ambiguella</i> Hb.</p>
<p>3. Main pests in vegetable crops in the field and protected areas Cruciferous plant pests (cabbage, cauliflower); Gray Limax - <i>Deroceras agreste</i> L.; Coropi ni a - <i>Gryllotalpa gryllotalpa</i> Latr. ; Red cabbage of the cabbage - <i>Eurydema ornata</i> L. ; The gray cabbage of the cabbage - <i>Brevicoryne brassicae</i> L. ; Black cabbage fleas - <i>Phyllotreta atra</i> F.; Sprouted cabbage fleas - <i>Phyllotreta nemorum</i> L.; The cabbage mackerel of the cabbage - <i>Ceuthorrhynchus pleurostigma</i> Marsh; White cabbage butterflies - <i>Pieris brassicae</i> L.; Buha verzei - <i>Mamestra brassicae</i> L. ; <i>Molia verzei</i> - <i>Plutella maculipennis</i> Curt. ; <i>Delia brassicae</i> Bché; Fruit Omida - <i>Chloridae armigera</i> Hbn. ; Bulb nematode - <i>Ditylenchus dipsaci</i> Kühn. ; <i>Delia antiqua</i> Meig. Pests of Greenhouse Cultures: The Gallic Nematode of the Roots - <i>Meloidogyne incognita</i> Chitw. ; Gallic Nematode of Flowers - <i>Meloidogyne sandstone</i> Neal. ; Greenhouse plant tripe - <i>Heliethrips haemorrhoidalis</i> Bché. ; Greenhouse whitefly - <i>Trialeurodes vaporariorum</i></p>
<p>4. Main pests in technical plants: spread, description, biology, ecology, plants attacked, pest mode, prevention and control measures; Beetroot Nematode - <i>Heterodera schachtii</i> Schmidt. ; The black beetroot - <i>Aphis fabae</i> Scop. ; Beetroot fleas - <i>Chaectocnema tibialis</i> Ill. ; The beet's neck - <i>Bothynoderes punctiventris</i> Germ. ; Beetroot mackerel - <i>Tanymecus palliatus</i> F.; Steppe Omida - <i>Loxostege sticticalis</i> L.; Colorado beetle - <i>Leptinotarsa decemlineata</i> Say. ; Fleas - <i>Aphthona euphorbiae</i> Schrank. ; Hemp fleas - <i>Psylliodes attenuata</i> Koch. ; Earth beetle - <i>Opatrum sabulosum</i> L. ; Sunflower moth - <i>Homoeosoma nebulella</i> Hb.</p>

<p>5. Main pests in fodder plants: spread, description, biology, ecology, attacked plants, pest mode, prevention and control measures: Red beetle lizard - <i>Phytodecta fornicata</i> Brügg; Lucifer's butterfly - <i>Subcoccinella 24-punctata</i> L. ; Lobster root lark - <i>Otiorrhynchus ligustici</i> L.; Clover flower clover - <i>Apion apicans</i> Herbst; Clover seed wasp - <i>Bruchophagus gibbus</i> Boh; Green pea lice - <i>Acyrtosiphon pisum</i> Harr; Pea chickpea - <i>Bruchus pisorum</i> L.; Pea chickpea - <i>Acanthoscelides obsoletus</i> L.</p>
<p>6. Main pests in cereal crops: spread, description, biology, ecology, plants attacked, mode of damage, prevention and control measures: Worms of wheat grains - <i>Anguina tritici</i> Steinb. ; Moroccan grasshopper - <i>Dociostaurus marocanus</i> Thunb. ; Italian lobster - <i>Calliptamus italicus</i> L.; Wheat Trips - <i>Kurdish Hapl�rips tritici</i>. ; Cereal plums - <i>Eurygaster</i> sp. and <i>Aelia</i> sp. ; The cockroach - <i>Zabrus tenebrioides</i> Goeze; Cereal beetle - <i>Anisoplia</i> sp. ; Corn leaf mackerel - <i>Tanymecus dilaticollis</i> Gyll. ; Maize sorcerer - <i>Ostrinia nubilalis</i> Hb. ; Seed Buha - <i>Scotia segetum</i> Schiff; Swedish fly - <i>Oscinella frit</i> L.; Yellow cereal fly - <i>Chlorops pumilionis</i> Bjerck</p>
<p>7. The main pests of the ornamental plants: The turtle wreath of the rose - <i>Aulacaspis rosae</i> Bché; The green roses of the rose - <i>Macrosiphum rosae</i> L. ; Yellow rose wasp - <i>Arge rose</i> L. ; The rushing wasp of the rose - <i>Ardis brunniventris</i> Htg. ; Ash's puppy - <i>Lytta vesicatoria</i> L. ; White willow butterflies - <i>Leucoma salicis</i> L. ; Elm cockroach - <i>Galerucella lutella</i> Müll</p>
<p>8. The main pests in the storage areas: spread, description, biology, ecology, plants attacked, pest mode, prevention and control measures: Flour mite (spider) - <i>Acarus siro</i> L.; Flour or worm - <i>Tenebriro molitor</i> L.; Flour beetle - <i>Tribolium confusum</i> Duv. ; Bee cockroach - <i>Stegobium paniceum</i> L.; Wheatgrass - <i>Sitophilus granarius</i> L.; The gray moth of cereals - <i>Sitotroga cerealella</i> Oliv. ; Dried fruit moth - <i>Plodia interpunctella</i> Hb. ; The gray moth of flour - <i>Anagasta kühniella</i> Zell.</p>

### Practical works

<p>1. Recognition of the major pests of the apple tree plantations: <i>Quadraspidiotus perniciosus</i>, <i>Epidiaspis leperii</i>, <i>Eriosoma lanigerum</i>, <i>Aphis pomi</i>, <i>Psylla pyricola</i>, <i>Anthonomus pomorum</i>, <i>Melolontha melolontha</i>, <i>Schiaphobus squalidus</i>, <i>Capnodis tenebrionis</i>, <i>Yepuzusutriata</i>, <i>Epicuzponis hiryrtia</i> <i>Hyphantria cunea</i>, <i>Aporia crataegi</i>, <i>Adoxophyes reticulana</i>, <i>Cydia pomonella</i>, <i>Hoplocampa testudinea</i>, <i>Lithocolletis blancardella</i>, <i>Panonychus ulmi</i>, <i>Hyalopterus pruni</i>, <i>Ruguloscolytus rugulosus</i>, <i>Cydia funebrana</i>, <i>Hoplocampa minutus</i>, <i>Eurytoma schreineri</i>, <i>Myzus cerasiol</i>, <i>Rhynchitesac cerus</i>, <i>Rhynchacea</i>, <i>Opus</i> , <i>Myzodes persicae</i>, <i>Anisandrus disappears</i>.</p>
<p>2. Recognition of the major pests of the vines: <i>Tetranychus urticae</i>, <i>Eryophyes vitis</i>, <i>Phylloxera vastatrix</i>, <i>Lethrus apterus</i>, <i>Polyphylla fullo</i>, <i>Anomala solid</i>, <i>Byctiscus betulae</i>, <i>Lobesia botrana</i>, <i>Eupoecilia ambiguella</i>, <i>Peribatodes rhomboisaria</i>, <i>Sparganothiana</i>, <i>Sparganothiana</i>, <i>Sparganoth</i>. Integrated control of the main pests of vine plantations.</p>
<p>3. Recognition of the main pests of vegetable crops in the field and protected areas: <i>Deroceras agreste</i>, <i>Gryllotalpa gryllotalpa</i>, <i>Eurydema ornata</i>, <i>Brevicoryne brassicae</i>, <i>Phyllotreta atra</i>, <i>Phyllotreta nemorum</i>, <i>Ceuthorrhynchus pleurostigma</i>, <i>Pieris brassicae</i>, <i>Mamestrauligica armorica</i>, <i>Pluta brassipen</i>, <i>Armestra brassicae dipsaci</i>, <i>Delia antiqua</i>, <i>Meloidogyne incognita</i>, <i>Meloidogyne sandstone</i>, <i>Heliothrips haemorrhoidalis</i>, <i>Trialeurodes vaporariorum</i>.</p>
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<p>5. Recognition of the major pests of cereal plants: <i>Anguina tritici</i> Steinb., <i>Dociostaurus marocanus</i>, <i>Calliptamus italicus</i>, <i>Hapl�rips tritici</i>, <i>Eurygaster</i> sp. and <i>Aelia</i> sp., <i>Zabrus tenebrioides</i>, <i>Anisoplia</i> sp., <i>Tanymecus dilaticollis</i>, <i>Ostrinia nubilalis</i>, <i>Scotia segetum</i>, <i>Oscinella frit</i>, <i>Chlorops pumilionis</i></p>

### Bibliography

1. Ghizdavu I. et al., 1997 - Agricultural Entomology. Didactic and Pedagogical Publishing House R.A., Bucharest.

2. Perju T., 1995 - Agricultural entomology, component of integrated protection of agroecosystems. Ceres Publishing House, Bucharest.
3. Ro ca I., Oltean I., Mitrea I., T Imaciu M., Petanec DI, Bunescu H. t., Istrate Rada, T Imaciu Nela, Stan C., Micu Lavinia M d lina, 2011 - General and special entomology treaty, Alpha MDN Publishing House, Buz u
4. T Imaciu Mihai, 2003 - Plant protection - Entomology, "Ion Ionescu de la Brad" Publishing House, Ia i.
5. T Imaciu M., 2005 - Agricultural Entomology, Ion Ionescu Publishing House from Brad, Ia i.

### **Evaluation**

<b>Evaluation form</b>	<b>Evaluation Methods</b>	<b>Percentage of the final grade</b>
Course	Exam: Test with various items	70%
	presence	
Practical works	Oral, case study, investigation, evaluation during the semesterl	30%

### **Contact**

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