University of Zagreb Faculty of Agriculture
Svetošimunska cesta 25, 10000 Zagreb
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General entomology (176011)

Course coordinator

Prof. Tanja Gotlin Čuljak, PhD

Course description

The aim of this course is to give students knowledge about economic importance of the insects as well as morphological, anatomical and biological features of the insects. Students will learn necessary teroethical knowledge about insects which are basics to understand applied entomology that from practical point studies harmful or beneficial pests.

ECTS: **6.00**

English language: **L3**

E-learning: **L1 with L2 elements**

Teaching hours: 60
Lectures: 35
Practicum: 21
Seminar: 4

Lecturer

- Assoc. Prof. Ivan Juran, PhD
- Prof. Tanja Gotlin Čuljak, PhD

Grading

Sufficient (2):
Good (3):
Very good (4):
Excellent (5):

Conditions for obtaining signature

Students are required to attend classes regularly and to be eligible they have to attend at least 80% of classes. Keeping records of attendance at lectures is carried out by teacher. In case of insufficient and unwarranted number of attendances student loses the right to get the signature and shall be subject to re-enter and listen to the next academic year. All excused absences beyond the permitted should be documented. Students have to actively participate in teaching at lectures and exercises and their willingness to teamwork is expected in solving group exercises. The prerequisite for taking the written exam is required number of earned points from the class attendances (lectures, exercises and seminars) and passing the album and colloquium at the end of semester.

Type of course

- Undergraduate studies / BS Courses taught in English (Elective course, 1 semester, 1 year)

General competencies

Students will be able to describe morphology, anatomy and biology of the most important pest species and classify them into basic taxonomic categories and develop learning skills for further studies and/or longlife learning.

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Types of instruction

- Lectures
- Laboratory practice/exercises
- Seminars

Learning outcomes

Learning outcome	Evaluation methods
describe importance of entomology, origin of insects, their prevalance and economic importance	
recognize morphological, anatomical and biological features of insects	
list ecologcal factors and methods for monitoring insects populations	
explain effect of ecological factors of pest population density	
describe methods of soil and plants sampling to determine pest population	
calculate and determine optimal time of pests treatment based on pest population	
integrate knowledge form general entomology with other plant protection courses	
develop leraning skills for master studies or longlife learning	

Working methods

Students' obligations

Students are required to attend classes regularly and to be eligible they have to attend at least 80% of classes. Keeping records of attendance at lectures is carried out by teacher. In case of insufficient and unwarranted number of attendances student loses the right to get the signature and shall be subject to re-enter and listen to the next academic year. All excused absences beyond the permitted should be documented. Students have to actively participate in teaching at lectures and exercises and their willingness to teamwork is expected in solving group exercises. The prerequisite for taking the written exam is required number of earned points from the class attendances (lectures, exercises and seminars) and passing the album and colloquium at the end of semester.

Methods of grading

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Total number of average student workload	ECTS
Participation in lectures	5	<81 81-84.9% 84.9-89.9% 90-94.9% 95-100%	Insufficient (1) Sufficient (2) Good (3) Very good (4) Excellent (5)			0.935

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Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Total number of average student workload	ECTS
Participation in excersises	5	continousliy present on excersises actively participate in excersises actively participation in excersises and excersisi book	Good (3) Very good (4) Excellent (5)			0.935
Seminar assay	10	appropriate terminology is not used and basics principles are not understand basic ideas, concepts and problems are treated in an appropriate manner and correct terminology is used	Very good (4) Excellent (5)			0.2
Album	5	one answer wrong all questions are answered correctly	Very good (4) Excellent (5)			0.1
On-line coloquium	5	one answer wrong all questions are answered correctly	Very good (4) Excellent (5)			0.1
Partial exam	3.73	<60% 60-69.9% 70-79.9% 80-89.9% 90-100%	Insufficient (1) Sufficient (2) Good (3) Very good (4) Excellent (5)			
Total	100	60-69.9 points - sufficient (2) 70-79.9 points - good (3) 80-89.9 points - very good (4) 90-100 points - excellent (5)				6

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Weekly class schedule

1. Introduction to plan and programme of the course and students responbilities. Origin, sistematisc, prevalance and economic importance of the insects.
2. Basic insect morphology, morphology of the insect head and structures connected with insect head.
3. Morphology of the insect thorax, types of insect legs and wings. Locomottion system. Morphlogy of the insect abdomen, types of insect abdomen and strucutres connected with abdomen.
4. Morphology of the insect skin and their practical importance, insect colour and skin glands. Muscular system.
5. Body cavity of the insects, structure and function of the insects digestive, ventilatory and hormonal system. Practical importance of the insect hormones.
6. Structure and function of the insect circulatory, nervous and reproductive system. Sensory organs and mechanisms.
7. Seminal transfer and fertilization.
8. Embryogenesis, organogenesis, postembrionic morphognesis.
9. Metamorphosis, types of insect, larvae and pupae. Diapause and polymorphism.
10. The life-system concept.
11. Insects and the abiotic-environment (temperature, moisture, light, other factors).
12. Insect and the biotic-environment (intraspecifis and interspecific interactions).
13. Interaction plant and herbivore, plants as insect food, plant defence, interaction predator and prey. Populatioin growth, spatial dispersion, migrations, population dinamics.
14. Trip to Varaždin to visit Entomological Museum.
15. Evaluation of the teachers.

Obligatory literature

1. Romoser, W.S., Stoffolano, J.G. (1994). The Science of Entomology. WCB, Oxford, England

Recommended literature

1. Speight, R. M., Hunter, D. M., Watt, D. A. (1999): Ecology of Insects, Blackwell Science, Oxford
2. Seifert, G.(1970): Entomologisches praktikum, Stuttgar