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| Name of course: **Animal pests of crops** | **Credit value: 3** |
| **Course** **classification**: compulsory |
| **The proportion of the practical nature of the course, „educational character”: 40 %** |
| **Type of course:** theoretical / practical, and the **total number: 28 hours** (14 lectures and 14 practices) in the given **semester.**Further (unique) means and properties of knowledge transfer: 1 lecture + 1 practice per week |
| **Exam** type (colloquium / practical grade / other): animal and damage recognition (for practical grade) and colloquiumFurther (unique) means of knowledge verification**:**  |
| The curricular **place of the course** (which semester): 2nd |
| Prerequisites (if any): **-**  |

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| **Course description: a brief, but informative description of the knowledge to be acquired (14 weeks).** |
| Basic and applied biology, ecology, biogeography and invasion biology of animal pests. Characterisation of the most important pests of cereals, maize, potato, tobacco, sugar beet, sunflower, rape, legumes, potato, green pepper, and onion belonging to Nematodes, Gastropods, Insects and Acari. Their morphology, distribution, habitat preference, host plant, life cycle and damage. Most widespread sampling and monitoring methods of the studied pests. Characterisation of the most common beneficial organisms (pollinators, predators, parasites) belonging to the learned groups and their use in the integrated plant management (IPM).Lecture:1. Introduction: IPM, basic biology and ecology of animal pests I.
2. Polyphagous pests of crops I.
3. Polyphagous pests of cops II.
4. Animal pests of cereals
5. Animal pests of maize
6. Animal pests of potato, tobacco
7. Animal pests of sugar beet
8. Animal pests of sunflower and rape
9. Animal pests of alfalfa
10. Animal pests of legumes (pea, soy, and bean)
11. Animal pests of potato, green pepper, and onion
12. Invasions in general and invasive species in the Hungarian fauna
13. Biological control.
14. Beneficial organisms, predators and parasites of the learned pests and its use in IPM technology.

Practice:1. Basic biology and ecology of animal pests II.

2-13. Morphology and identification of the learned pests and their damage on different host plants.14: Sampling methods and pest monitoring. |
| **Required and recommended reading:** |
| **Required reading:**1. Marczali Zs. (2020): Modul of applied entomology: Field pests in temperate zone of Europe http://dtk.tankonyvtar.hu/xmlui/handle/123456789/2953
2. Pénzes-Kónya, E. & Varga J (2020): Ecology for students of Medical Plant Production Expert higher level vocational training programme. https://dtk.tankonyvtar.hu/handle/123456789/3634

**Recommended reading:**1. Marczali Zs. (2020): Insect ecology https://dtk.tankonyvtar.hu/handle/123456789/2949
2. Marczali Zs. (2020): Insect Physiology https://dtk.tankonyvtar.hu/handle /123456789/3205
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| **Competencies to be acquired, related to the course:** |
| **a) Knowledge:** * knowledge of Integrated Plant Management theory and its use in agriculture
* basic knowledge in biology and population ecology of invertebrate pests of crops
* basic knowledge of monitoring methods
* deep knowledge of the economically most important Nematoda, Gastropoda, Insect and Acari pests and beneficial organisms belonging to these taxa

**b) Ability:*** autonomous use of microscopes and identification keys in identification of pests
* recognition of most important pests of the studied taxa and symptoms caused by them
* autonomous use of the most common sampling methods and equipment against the learned pests

**c) Attitude:** * self-determination
* initiative

**d) Autonomy and responsibility:*** Able to work both autonomously and in cooperation with colleges.
* Able to make a decision based on knowledge of the subject.
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| **Course leader** (name, post, academic degree): **Dr. Antal Nagy PhD associate professor** |
| **Other lecturer(s) involved in teaching the course, if any** (name, post, academic degree): **-** |