



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

<b>Predmet:</b>	<b>Entomologija</b>
<b>Course title:</b>	<b>Entomology</b>

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Enovit magistrski študijski program druge stopnje Predmetni učitelj	/		
Five-year master's degree program Subject Teacher	/		

Vrsta predmeta / Course type

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Lab. vaje Laboratory work	Terenske vaje Field work	Samost. delo Individ. work	ECTS
30			15		135	6

Nosilec predmeta / Lecturer:

Jeziki / Predavanja / Lectures:   
Languages: Vaje / Tutorial:

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

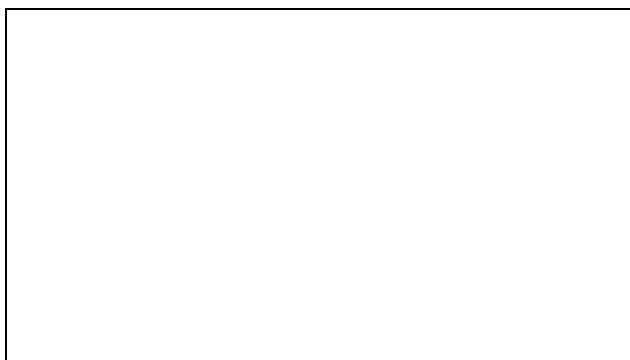
**Prerequisites:**

**Vsebina:**

- Koža. Clenjenost telesa. Biokemija in presnova žuželk. Prehrana in prebava.
- Vsebnost vode, osmoregulacija, izlo
- Dihala. Hemolimfa in cirkulacija.
- Živcevje. Senzorici receptorji.
- Mišice in gibanje. Učenje in spomin.
- Hormonalni sistem. Razmnoževanje in razvoj.
- Socialne žuželke. Žuželke in rastline.
- Entomofage žuželke. Bioluminiscenca.
- Žuželke in mikroorganizmi.
- Medicinska entomologija.
- Biološka, kemijska in biotehniška kontrola škodljivcev. Regulacija gostote populacije.
- Biogeografija.
- Sistem žuželk.
- Žuželke v Sloveniji.

**Content (Syllabus outline):**

- Integument. Body segmentation. Biochemistry and metabolism. Nutrition and digestion.
- Water balance, osmoregulation, excretion.
- Respiratory system. Hemolymph and circulation.
- Nervous system. Sensory receptors.
- Muscles and locomotion. Learning and memory.
- Endocrine system. Reproduction and development.
- Social insects. Insects and plants.
- Entomophagous insects. Bioluminescence.
- Insects and microorganisms.
- Medical entomology.
- Biological, chemical and biotechnical pest control.
- Regulation of population density.
- Biogeography.



- Insect systematics.
- Insects in Slovenia.

### Temeljni literatura in viri / Readings:

- Borror, D. J., C. A. Triplehorn, N.F. Johnson, 1989: An introduction to the study of insects. Saunders College Publ., Philadelphia.
- Chapman, R. F., 1998: The insects: structure and function. Harvard University Press; Cambridge, Mass.
- Dettner, K., W. Peters, (eds.), 2003: Lehrbuch der Entomologie. Spektrum, G. Fischer, Heidelberg.
- Dusenbery, D. B., 1995: Sensory ecology: How organisms acquire and respond to information. W. H. Freeman and Company, New York.
- Elzinga, R. J., 2003: Fundamentals of entomology. Prentice Hall, Upper Saddle River.
- Jurc, M., 2005: Gozdna zoologija. Univerza v Ljubljani, Biotehniška fakulteta, Oddelek za gozdarstvo in obnovljive gozdne vire.
- Resh, V. H., R. T. Cardé, 2003: Encyclopedia of insects. Academic Press – Elsevier, New York.

### Cilji in kompetence:

- Razumeti kompleksnost biologije žuželk
- Spoznati predstavnike glavnih redov žuželk
- Poznati in razumeti vlogo gospodarsko pomembnih žuželk
- Poznati značilne predstavnike slovenske entomofavne

### Objectives and competences:

- To understand complexity of insect biology
- To present representatives of the most important insect orders
- To understand role of the economically important insects
- Knowledge of important representatives of Slovenian entomofauna

### Predvideni študijski rezultati:

#### Znanje in razumevanje:

- Razumevanje biotskih adaptacij, ki vodijo do uspeha žuželk v okolju
- Razumeti kompleksnost biologije žuželk
- Spoznati predstavnike glavnih redov žuželk
- Poznati in razumeti vlogo gospodarsko pomembnih žuželk

#### Prenesljive/ključne spretnosti in drugi atributi:

- Sposobnost ustreznega zbiranje žuželk na terenu in determinacijo v laboratoriju

#### Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje – individualno eksperimentalno delo

### Intended learning outcomes:

#### Knowledge and understanding:

- Understanding of the biotic adaptations employed to achieve survival and success of insects in environment
- To understand complexity of insect biology
- To present representatives of the most important insect orders
- To understand role of the economically important insects

#### Transferable/Key Skills and other attributes:

- Ability to conduct appropriate collecting in the field and determination in laboratory

#### Learning and teaching methods:

- Lectures
- Laboratory excersises – individual experimental practice

Načini ocenjevanja:	Weight (in %)	Assessment:
• Kolokvij iz vaj	30	• Partial exam of experimental practice
• Seminarska naloga	30	• Seminar essay
• Pisni izpit	40	• Written exam

#### Reference nosilca / Lecturer's references:

1. DEVETAK, Dušan, NOVAK, Tone, JANŽEKOVIČ, Franc. Effect of substrate density on behaviour of antlion larvae (Neuroptera: Myrmeleontidae). *Acta oecologica*. [Print ed.], 2012, vol. 43, str. 1-7. [COBISS.SI-ID [19210248](#)]
2. KLOKOČOVNIK, Vesna, DEVETAK, Dušan, ORLAČNIK, Marina. Behavioral plasticity and variation in pit construction of antlion larvae in substrates with different particle sizes. *Ethology*, Nov. 2012, vol. 118, iss. 11, str. 1102-1110, doi: [10.1111/eth.12012](#). [COBISS.SI-ID [19324936](#)]
3. LIPOVŠEK DELAKORDA, Saška, LETOFSKY-PAPST, Ilse, HOFER, Ferdinand, LEITINGER, Gerd, DEVETAK, Dušan. The evidence on the degradation processes in the midgut epithelial cells of the larval antlion *Euroleon nostras* (Geoffroy in Fourcroy, 1785) (Myrmeleontidae, Neuroptera). *Micron (1993)*. [Print ed.], 2012, vol. 43, iss. 5, str. 651-665, ilustr., doi: [10.1016/j.micron.2011.11.012](#). [COBISS.SI-ID [18855176](#)]
4. LIPOVŠEK DELAKORDA, Saška, LETOFSKY-PAPST, Ilse, HOFER, Ferdinand, PABST, Maria Anna, DEVETAK, Dušan. Application of analytical electron microscopic methods to investigate the function of spherites in the midgut of the larval antlion *Euroleon nostras* (Neuroptera: Myrmeleontidae). *Microsc. res. tech. (Print)*, 2012, vol. 75, iss. 4, str. 397-407, ilustr., doi: [10.1002/jemt.21069](#). [COBISS.SI-ID [18638856](#)]
5. DEVETAK, Dušan, LIPOVŠEK DELAKORDA, Saška, PABST, Maria Anna. Larval morphology of the antlion *Neuroleon microstenus* (McLachlan, 1898) (Neuroptera, Myrmeleontidae), with notes on larval biology. *Zootaxa (Print)*, 2010, 2428, str. 55-63, ilustr. <http://www.mapress.com/zootaxa/2010/f/zt02428p063.pdf>. [COBISS.SI-ID [17543944](#)]