



Univerza v Mariboru



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Fakulteta za naravoslovje in
matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Biologija žuželk
Course title:	Biology of Insects

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Biologija in ekologija z naravovarstvom, 2. stopnja	/	1/2	Poletni/ Zimski
Biology and Ecology with Nature Conservation, 2 nd Level	/	1/2	Summer/ Winter

Vrsta predmeta / Course type Izbirni / Elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15	15		15		135	6

Nosilec predmeta / Lecturer: Dušan Devetak

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

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

Prerequisites:

Poznavanje biodiverzitete Slovenije.

Knowledge of biodiversity of Slovenia.

Vsebina:

- Koža. Členjenost telesa. Biokemija in presnova žuželk. Prehrana in prebava.
- Vsebnost vode, osmoregulacija, izločanje.
- Dihala. Hemolimfa in cirkulacija.
- Živčevje. Senzorični 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
- Sposobnost ustreznega zbiranje žuželk na terenu in determinacijo v laboratoriju

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

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

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

Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje – individualno eksperimentalno delo

Learning and teaching methods:

- Lectures
- Laboratory excersises – individual experimental practice

Načini ocenjevanja:

Način (pisni izpit, ustno izpraševanje, naloge, projekt)

- Kolokvij iz vaj
- Seminarska naloga

Pisni izpit

Delež (v %) /

Weight (in %) /

Assessment:

Type (examination, oral, coursework, project):

- Partial exam of experimental practice
- Seminar essay

Written exam

Reference nosilca / Lecturer's references:

DEVETAK, Dušan. Notes on Megaloptera and Neuroptera (Insecta: Neuropterida) of the Brdo pri Kranju estate (Slovenia). *Ann, Ser. hist. nat.*, 2011, letn. 21, št. 1, str. 69-74, ilustr. [COBISS.SI-ID [2074579](#)]

DEVETAK, Dušan, PODLESNIK, Jan, JANŽEKOVICH, Franc. Antlion Dendroleon pantherinus (Fabricius, 1787) (Neuroptera: Myrmeleontidae) in Slovenia = Volkec vrste Dendroleon pantherinus (Fabricius, 1787) (Neuroptera: Myrmeleontidae) v Sloveniji. *Acta entomol. slov. (Ljubl.)*, dec. 2010, vol. 18, št. 2, str. 159-162, ilustr. [COBISS.SI-ID [18005256](#)]

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](#)]

DEVETAK, Dušan, LIPOVŠEK DELAKORDA, Saška, PABST, Maria Anna. Morphology and biology of the antlion Myrmeleon yemenicus Hölzel, 2002 (Neuroptera, Myrmeleontidae). *Zootaxa (Print)*, 2010, 2531, str. 48-56, ilustr. [COBISS.SI-ID [17865480](#)]