



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Izbor iz biologije členonožcev
Course title:	Selection in Arthropod Biology

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Doktorski študij Ekološke znanosti, 3. stopnja		1. ali 2.; 1st or 2nd	1. 2. ali 3. ; 1st, 2nd or 3rd
Doctoral Study Ecological Sciences, 3rd degree			

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
5				5	140	5

Nosilec predmeta / Lecturer:

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

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

Poznavanje členonožcev na ravni univerzitetnega programa

Prerequisites:

Knowledge of arthropods at graduate level

Vsebina:

Študij prehranjevalne biologije izbrane skupine členonožcev: analiza vsebine prebavnega trakta

- Študij izbrane skupine členonožcev v prehrani izbranih skupin njihovih plenilcev
- Kompeticija in gostota populacije izbranih členonožcev
- Taksonomija kripticnih vrst rodu *Trogulus* in delitev ekoloških niš v sintopnih razmerah
- Reprodukcijska kompatibilnost kripticnih vrst rodu *Trogulus* v sintopnih in alotopnih razmerah
- Žuželke v medicini: izbrane skupine strupenih žuželk in vektorji
- Taksonomija kripticnih vrst rodu *Chrysoperla* in njihov pomen pri biološki borbi s škodljivci

Content (Syllabus outline):

Feeding biology in selected arthropods: intestinal contents analysis

- Selected groups of arthropods in the diet of selected predator groups
- Competition and density of selected arthropods population
- Medical entomology: selected poisonous insects, vectors
- Taxonomy of cryptic species of the genus *Trogulus*, and sharing of their ecological niches in syntopic and allotopic habitats
- Reproduction compatibility of cryptic species of the genus *Trogulus* in syntopic and allotopic conditions

• Zoogeografija izbranih skupin žuželk in pajkovcev

• Taxonomy of cryptic species of the genus *Chrysoperla* and their relevance in the pest control management
• Zoogeography of selected insects and arachnids

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.
- Elzinga, R. J., 2003: Fundamentals of entomology. Prentice Hall, Upper Saddle River.
- Foelix, R. F., 1996: Biology of spiders. Oxford University press & Georg Thieme Verlag.
- Hillyard, P. D., J. H. P. Sankey, 2005: Harvestmen (Opiliones) Synopses of the British Fauna 4. Mus. Nat.-hist. London.
- McEwen, P. K., T. R. New, A. E. Whittington, 2001: Lacewings in the crop environment. Cambridge University Press, Cambridge.
- Pinto-da-Rocha, R., G. Machado, G. Giribet, 2007: Harvestman: The Biology of Opiliones. Harvard University Press, Cambridge, MA.
- Resh, V. H., R. T. Cardé, 2003: Encyclopedia of insects. Academic Press – Elsevier, New York.
- Thaler, K. (ed.), 2005: Diversität und Biologie von Webbspinnen, Skorpionen und anderen Spinnentieren. Denisia 12.
- Weygoldt, P. 1969: Biology of Pseudoscorpions. Harvard University Press.

Cilji in kompetence:

Razumeti kompleksnost izbrane skupine biologije clenonožcev

- Podrobno spoznati predstavnike izbrane skupine clenonožcev clenonožcev
- Poznati in razumeti vlogo izbranih gospodarsko pomembnih clenonožcev

Objectives and competences:

To understand complexity of biology of selected arthropod group

- Advanced knowledge of representatives of the selected arthropod group
- To understand role of selected economically important arthropods

Predvideni študijski rezultati:

Znanje in razumevanje:

- Razumevanje uspešnosti izbranih adaptacij clenonožcev v različnih okoljih
- Razumeti kompleksnost bionomije izbrane skupine clenonožcev
- Podrobno spoznati izbrane predstavnike clenonožcev
- Poznati in razumeti vlogo gospodarsko izbranih clenonožcev

Prenesljive/ključne spretnosti in drugi atributi:

- Sposobnost znanstveno raziskovati aktualne probleme v zvezi z bionomijo clenonožcev
- Sposobnost opraviti načrtovati in opraviti zahtevne poskuse s clenonožci

Intended learning outcomes:

Knowledge and Understanding:

- Understanding of selected successful adaptations arthropods in different environments
- To understand complexity of the bionomy of selected arthropod groups
- Get advanced knowledge of selected arthropods representatives
- To understand the economical role of selected arthropods

Transferable/Key Skills and other attributes:

- Ability to investigate scientifically actual problems concerning the bionomy of arthropods
- Skills to plan and conduct complex experiments with arthropods

<ul style="list-style-type: none"> • Predavanja • Laboratorijske vaje – individualno eksperimentalno delo 	<ul style="list-style-type: none"> • Lectures • Laboratory excersises – individual experimental practice
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Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
<ul style="list-style-type: none"> • Kolokvij iz praktičnega dela • Seminarska naloga • Ustni izpit 	30 % 40 % 30 %	<ul style="list-style-type: none"> • Partial exam of experimental practice • Seminar essay • Oral exam

Reference nosilca / Lecturer's references:

NOVAK, Tone, PERC, Matjaž, LIPOVŠEK DELAKORDA, Saška, JANŽEKVIČ, Franc. Duality of terrestrial subterranean fauna. *International journal of speleology*, ISSN 0392-6672, 2012, vol. 41, no. 2, str. 181-188, doi: 10.5038/1827-806X.41.2.5. [COBISS.SI-ID 19061512]

NOVAK, Tone, JANŽEKVIČ, Franc, LIPOVŠEK DELAKORDA, Saška. Contribution of non-troglobiotic terrestrial invertebrates to carbon input in hypogean habitats = Prispevek prezimujočih netroglobiontskih kopenskih nevretenčarjev k vnosu ogljika v podzemeljske habitate. *Acta carsologica*, ISSN 0583-6050, 2013, letn. 42, št. 2/3, str. 301-309, tabele. <http://ojs.zrc-sazu.si/carsologica/article/view/669/600>, doi: 10.3986/ac.v42i2-3.669. [COBISS.SI-ID 20238600]

LIPOVŠEK DELAKORDA, Saška, JANŽEKVIČ, Franc, NOVAK, Tone. Autophagic activity in the midgut gland of the overwintering harvestmen *Gyas annulatus* (Phalangidae, Opiliones). *Arthropod structure & development*, ISSN 1467-8039, 2014, str. 1-8, ilustr., doi: 10.1016/j.asd.2014.06.001. [COBISS.SI-ID 20696584]

NOVAK, Tone, ŠAJNA, Nina, ANTOLINC, Estera, LIPOVŠEK DELAKORDA, Saška, DEVETAK, Dušan, JANŽEKVIČ, Franc. Cold tolerance in terrestrial invertebrates inhabiting subterranean habitats. *International journal of speleology*, ISSN 0392-6672, 2014, vol. 43, no. 3, str. r39-r46. <http://dx.doi.org/10.5038/1827-806X.43.3.3>, doi: 10.5038/1827-806X.43.3.3. [COBISS.SI-ID 20595208]

NOVAK, Tone, KOZEL, Peter. *Hadzinia ferrani*, sp. n. (Opiliones: Nemastomatidae), a highly specialized troglobiotic harvestman from Slovenia. *Zootaxa*, ISSN 1175-5326, 2014, vol. 3841, no. 1, str. 135-145, ilustr. <http://biotaxa.org/Zootaxa/article/view/zootaxa.3841.1.8>, doi: 10.11646/zootaxa.3841.1.8. [COBISS.SI-ID 37430317]