



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

<b>Predmet:</b>	<b>Izbrana poglavja iz nevroetologije</b>
<b>Course title:</b>	<b>Selected Topics in Neuroethology</b>

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** Izbirni/Elective

**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:** Dušan DEVETAK

<b>Jeziki /</b>	<b>Predavanja / Lectures:</b>	slovenski / Slovene
<b>Languages:</b>	<b>Vaje / Tutorial:</b>	slovenski / Slovene

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

Poznavanje fiziologije na ravni univerzitetnega ter eksperimentalnih metod v fiziologiji na ravni drugostopenjskega programa

**Prerequisites:**

Knowledge of physiology at graduate level and of experimental methods in physiology at master level

**Vsebina:**

Obravnavana so izbrana poglavja iz naslednjih sklopov.

- Živčne celice in vedenje
- Celicna in molekularna biologija nevrona
- Sinaptični prenos
- Funkcionalna zgradba centralnega živčnega sistema
- Senzorčni sistemi vretenčarjev
- Senzorčni sistemi nevretenčarjev
- Motorični sistemi
- Integracija senzorčnih in motoričnih sistemov

**Content (Syllabus outline):**

Selected topics in the following chapters are discussed.

- Nerve cells and behaviour
- Cell and molecular biology of the neuron
- Synaptic transmission
- Functional anatomy of the central nervous system
- Sensory systems in vertebrates
- Sensory systems in invertebrates
- Motor systems
- Integration of sensory and motor systems

## Temeljni literatura in viri / Readings:

- Ogawa, H., Oka, K. (2013). Methods in Neuroethological Research. Springer
- Halliday, T., (1998). The senses and communication. Springer and The Open University, Berlin, New York.
- Zupanc, Günther K. H. (2010). Behavioral Neurobiology: An integrative Approach. Oxford University Press.
- Kandell, E. R., Schwartz, J. H., Jessel, T.M. (2012). Principles of Neural Science: 5th edition. McGraw-Hill Professional Publishing.

### Cilji in kompetence:

- Podati podrobno povezavo med živalskim organizmom in njegovim zunanjim in notranjim okoljem
- Podrobno pojasniti integracijsko vlogo senzoričnega sistema, živcevja ter motoričnega sistema
- Podrobno predstaviti raznolikost in kompleksnost živčnega sistema

### Objectives and competences:

- To give advanced the relations between animal organism and its internal and external environment
- To explain in detail integrative role of sensory system, nervous system and motor system
- To present in detail diversity and complexity of the nervous system

### Predvideni študijski rezultati:

#### Znanje in razumevanje:

- Povezava med organizmom in njegovim zunanjim in notranjim okoljem
- Vloga integracijskih sistemov - senzoričnega sistema in živcevja ter motoričnega sistema
- Kompleksnost centralnega živčnega sistema

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

- Sposobnost načrtovati in izvesti zahtevne eksperimente za testiranje odzivov živali na kontrolirane spremembe v njenem okolju
- Sposobnost podrobno ovrednotiti rezultate nevrofiziološkega poskusa

### Intended learning outcomes:

#### Knowledge and understanding:

- Relations between organism and its external and internal environment.
- Integrative role of sensory, nervous and motor system.
- Complexity of central nervous system.

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

- Ability to arrange complex experiments testing responses of an animal to controlled changes of its environment
- Ability to evaluate in detail results of an experiment in neurophysiology

### Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje – individualno eksperimentalno delo

### Learning and teaching methods:

- Lectures
- Laboratory excersises – individual experimental practice

Načini ocenjevanja:	Delež (v %) / 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. MENCINGER VRAČKO, Bojana, DEVETAK, Dušan. Orientation of the pit-building antlion larva *Euroleon* (Neuroptera, Myrmeleontidae) to the direction of substrate vibrations caused by prey. *Zoology*, ISSN 0944-2006. [Print ed.], 2008, vol. 111, iss. 1, str. 2-8, ilustr. [COBISS.SI-ID [15674632](#)], [JCR, SNIP, WoS do 6. 5. 2014: št. citatov (TC): 5, čistih citatov (CI): 3, normirano št. čistih citatov (NC): 2, [Scopus](#) do 15. 4. 2014: št. citatov (TC): 6, čistih citatov (CI): 4, normirano št. čistih citatov (NC): 3]
2. DEVETAK, Dušan, PABST, Maria Anna, LIPOVŠEK DELAKORDA, Saška. Leg chordotonal organs and campaniform sensilla in *Chrysoperla Steinmann 1964* (Neuroptera) : structure and function. *Denisia*, ISSN 1608-8700, 17. sep. 2004, 13, str. 163-171. [COBISS.SI-ID [13573384](#)]
3. LIPOVŠEK DELAKORDA, Saška, DEVETAK, Dušan, ŠTRUS, Jasna, PABST, Maria Anna. A contribution to the functional morphology of the femoral chordotonal organ in the green lacewing *Chrysoperla carnea* (Neuroptera). *Anatomia, Histologia, Embryologia*, ISSN 0340-2096. [Print ed.], 2003, letn. 32, str. 291-296, ilustr. [COBISS.SI-ID [12776968](#)], [JCR, SNIP, WoS do 4. 1. 2014: št. citatov (TC): 3, čistih citatov (CI): 3, normirano št. čistih citatov (NC): 5, [Scopus](#) do 28. 12. 2013: št. citatov (TC): 4, čistih citatov (CI): 4, normirano št. čistih citatov (NC): 6]