Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Fiziologija živali**
Course title:	**Animal Physiology**

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	**/**	**4**	**7**
Five-year master's degree program Subject Teacher	**/**		

Vrsta predmeta / Course type	Obvezni / Obligatory
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			**30**		**120**	**6**

Nosilec predmeta / Lecturer:	Dušan Devetak

Jeziki / Languages:	**Predavanja / Lectures:**	slovenski / slovene
	Vaje / Tutorial:	slovenski / slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Poznavanje osnov zoologije.	Knowledge of fundamentals of zoology.

Vsebina:	**Content (Syllabus outline):**
Zunanje in notranje okolje. Energetika celice. Energetika organizma. Temperatura in termoregulacija. Fiziologija membran: od zgradbe membrane do živčne integracije. Senzorična fiziologija: zaznavanje okolja. Hormoni in endokrini sistem. Celično gibanje, mišice in gibanje živali. Živčevje in vedenje. Kri in krvožilje. Izmenjava plinov – dihanje. Ionsko in osmotsko ravnotežje. Prehrana in prebava.	External and internal environments. Cellular energetics. Animal energetics. Temperature and thermoregulation. Membrane physiology: from membrane structure to neural integration. Sensory physiology: sensing the environment. Hormones and endocrine system. Cell movement, muscles and animal movement. Nervous system and behaviour. Blood and circulation. Gas exchange – respiration. Ionic and osmotic balance. Feeding and digestion.

Temeljni literatura in viri / Readings:

- Alcock, J., 2005: Animal behavior: an evolutionary approach. 8th ed. Freeman, Sunderland.
- Randall, D., W. Burggren, K. French, 2000: Eckert Animal Physiology. W.H. Freeman and Company, New York.
- Withers, P.C., 2002: Comparative Animal Physiology. Saunders College Publishing, Philadelphia, New York.

Cilji in kompetence:

. Podati povezavo med živalskim organizmom in njegovim zunanjim in notranjim okoljem
. Pojasniti vlogo membran pri temeljnih fizioloških procesih.
. Pojasniti integracijsko vlogo senzoričnega sistema, živčevja in hormonalnega sistema.
. Predstaviti temeljne fiziološke procese v živalskem organizmu.

Objectives and competences:

. To give the connection between animal organism and its internal and external environment.
. To explain the role of membranes in general physiological processes.
. To explain integrative role of sensory system, hormones and nervous system.
. To present fundamental physiological processes in animal organisms.

Predvideni študijski rezultati:

Znanje in razumevanje:
. Povezava med živalskim organizmom in njegovim zunanjim in notranjim okoljem
. Vlogo membran pri temeljnih fizioloških procesih.
. Vloga integracijskih sistemov - senzoričnega sistema, živčevja in hormonalnega sistema.
. Osnovni procesi metabolizma od celičnega nivoja do organizma.

Prenesljive/ključne spretnosti in drugi atributi:
. Sposobnost načrtovati in izvesti preproste eksperimente za testiranje odzivov živali na kontrolirane spremembe v njenem okolju.
. Sposobnost ovrednotiti rezultate fiziološkega poskusa.

Intended learning outcomes:

Knowledge and understanding:
. Connection between animal organism and its internal and external environment.
. The role of membranes in general physiological processes.
. Integrative role of sensory system, hormones and nervous system.
. Metabolic processes from cell to organism.

Transferable/Key Skills and other attributes:
. Ability to arrange simple experiments testing responses of an animal to controlled changes of its environment.
. Ability to evaluate results of an experiment in animal physiology.

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.	50%	Partial exam of experimental practice.
Pisni izpit.	50%	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-ID19210248]

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]