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**
Univerzitetni študijski program Ekologija z naravovarstvom, 1. stopnja	/	3	6
Undergraduate university programme Ecology with Nature Conservation, 1st degree	/	3	6

Vrsta predmeta / Course type	Obvezni / Compulsory
Univerzitetna koda predmeta / University course code:	

Predavanja **Lectures**	**Seminar** **Seminar**	**Vaje** **Tutorial**	**Klinične vaje** **work**	**Druge oblike študija**	**Samost. delo** **Individ. work**	**ECTS**
45		30			105	6

Nosilec predmeta / Lecturer:	Dušan Devetak

Jeziki / Languages:	**Predavanja / Lectures:**	Slovenski / Slovenian
	Vaje / Tutorial:	Slovenski / Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Jih ni.	No prerequisites.

Vsebina:

Zunanje in notranje okolje.
Energetika celice. Energetika organizma.
Temperatura in termoregulacija.
Fiziologija membran: od zgradbe membrane do živčne integracije.
Senzorična fiziologija: čutila in zaznavanje okolja.
Hormoni in endokrini sistem.
Celično gibanje, mišice in gibanje živali.
Živčevje in vedenje.
Kri in krvožilni sistem.
Izmenjava plinov – dihanje.
Ionsko in osmotsko ravnotežje.
Prehrana in prebava.

Content (Syllabus outline):

External and internal environments.
Cellular energetics. Animal energetics.
Temperature and thermoregulation.
Membrane physiology: from membrane structure to neural integration.
Sensory physiology: sensory organs and 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:

Temeljna literatura / Basic:

Hill, R.W., G.A. Wyse, M. Anderson, 2016: Animal Physiology 4th Edition. Oxford University Press, Oxford.

Priporočena literatura / Recommended:

Moyes, C.D., P.M. Schulte, 2015: Principles of Animal Physiology. 3rd Edition. Pearson, Toronto.
Schmidt-Nielsen, K., 2010: Animal physiology: adaptation and environment. Cambridge University Press. Cambridge.
Sherwood, L., H. Klandorf, P. Yancey, 2012: Animal Physiology: From Genes to Organisms 2nd Edition. Cengage Learning, Brooks and Cole, Belmont, USA.

Cilji in kompetence:

- Obravnavati zveze živalski organizem – zunanje okolje – notranje okolje
- Pojasniti vlogo celičnih membran pri temeljnih fizioloških procesih
- Pojasniti integracijsko vlogo senzoričnega, hormonalnega in živčnega sistema
- Predstaviti temeljne fiziološke procese v živalskem organizmu

Objectives and competences:

- To discuss relations: animal organism – internal environment – external environment
- To explain the role of cell membranes in general physiological processes
- To explain integrative role of sensory, hormonal and nervous system
- To present fundamental physiological processes in animal organisms.

Predvideni študijski rezultati:

Intended learning outcomes:

Po uspešno opravljeni učni enoti naj bi bili študenti zmožni: - opisati vlogo membran pri temeljnih fizioloških procesih; - razložiti zgradbo organov in povezavo zgradbe s funkcijo; - načrtovati ter izvajati eksperiment in izsledke interpretirati; - razumeti in zagovarjati etične principe pri poskusih na živalih.	By the end of this course students should be able to: - explain the role of membranes in basic physiological processes; - explain the structure of organs and the relationship of structure to function; - design, conduct and report on experiments in animal physiology; - explain and defend ethical approach in animal experiment.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja Laboratorijske vaje – individualno eksperimentalno delo	Lectures Laboratory exercises – individual experimental practice

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Kolokvij in poročilo iz vaj Pisni izpit Opravljen kolokvij in poročilo sta pogoj za pristop k izpitu.	50 50	Partial exam and report of experimental practice Written exam Partial exam and laboratory report are prerequisites for taking the exam.

Reference nosilca / Lecturer's references:

KLOKOČOVNIK, Vesna, HAUPTMAN, Gregor, DEVETAK, Dušan. Effect of substrate temperature on behavioural plasticity in antlion larvae. *Behaviour*, ISSN 0005-7959, 2016, vol. 153, issue 1, str. 31-48, doi: 10.1163/1568539X-00003322. [COBISS.SI-ID 21695496]

DEVETAK, Dušan, PODLESNIK, Jan, KLOKOČOVNIK, Vesna. Predator-prey interactions in antlions: transmission of vibrational signals deep into the sand. *Acta entomologica slovenica*, ISSN 1318-1998, dec. 2018, vol. 26, št. 2, str. 121-130, ilustr. [COBISS.SI-ID 1957365]

DEVETAK, Dušan. *Biophysical properties of sand influence predatory behaviour in antlions : Conférence, Laboratoire d'Ethologie Expérimentale et Comparée - LEEC, Université Paris 13 Sorbonne Paris Cité, Mercredi 16 mai 2018*. [COBISS.SI-ID 24061192]

DEVETAK, Dušan. *Behavioural ecology of the prey capture behaviour in larval antlions : lecture, Master Ethology, LEEC - Laboratoire d'Ethologie Expérimentale et Comparée, Université Paris 13 Sorbonne Paris Cité, 20 November 2017*. [COBISS.SI-ID 23511048]

PODLESNIK, Jan, KLOKOČOVNIK, Vesna, LORENT, Vincent, DEVETAK, Dušan. Prey detection in antlions: propagation of vibrational signals deep into the sand. *Physiological Entomology*, 2019, in press