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: Jan Podlesnik

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.
Ashcroft F. 2011: Življenje v skrajnostih: umetnost preživetja. Zavod Republike Slovenije za šolstvo, Ljubljana.

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

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.

● Predstaviti temeljne fiziološke procese v živalskem organizmu	

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:**
2 kolokvija in poročilo iz vaj Pisni izpit Opravljena kolokvija in poročilo sta pogoj za pristop k izpitu.	 50 50	2 partial exams and report of experimental practice Written exam Partial exams and laboratory report are prerequisites for taking the exam.

Reference nosilca / Lecturer's references:

MARTINEZ, Vanessa, SILLAM-DUSSES, David, DEVETAK, Dušan, LORENT, Vincent, PODLESNIK, Jan. Antlion larvae localize long distant preys by a mechanism based on time difference. Journal of Comparative Physiology A. Maj 2023 (in press).

DEVETAK, Dušan, PODLESNIK, Jan, SCHARF, Inon, KLENOVŠEK, Tina. Fine sand particles enable antlions to build pitfall traps with advanced three-dimensional geometry. Journal of Experimental Biology. Aug. 2020, vol. 223, no. 15, str. 1-10. ISSN 0022-0949. DOI: 10.1242/jeb.224626. [COBISS.SI-ID 28827907]

PODLESNIK, Jan, JAKŠIĆ, Predrag N., NAHIRNIĆ, Ana, JANŽEKOVIČ, Franc, KLENOVŠEK, Tina, KLOKOČOVNIK, Vesna, DEVETAK, Dušan, et al. Fauna of the brown lacewings of Serbia (Insecta: Neuroptera: Hemerobiidae). Acta entomologica slovenica. jun. 2019, vol. 27, št. 1, str. 17-29, zvd. ISSN 1318-1998. http://www.dlib.si/details/URN:NBN:SI:doc-EFR3WIIU. [COBISS.SI-ID 2027509]

PODLESNIK, Jan, KLOKOČOVNIK, Vesna, LORENT, Vincent, DEVETAK, Dušan. Prey detection in antlions : propagation of vibrational signals deep into the sand. Physiological entomology. 2019, vol. 44, iss. 3/4, str. 215-221. ISSN 0307-6962. DOI: 10.1111/phen.12295. [COBISS.SI-ID 24646664], [JCR, SNIP]

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]