



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	<b>Fiziologija živali</b>
<b>Course title:</b>	<b>Animal Physiology</b>

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Univerzitetni študijski program Biologija, 1. stopnja	/	3	6
Undergraduate university programme Biology, 1 <sup>st</sup> degree	/	3	6

**Vrsta predmeta / Course type**

**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:**

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

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

Jih ni.

**Prerequisites:**

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:**

Predavanja  
Laboratorijske vaje – individualno eksperimentalno delo

**Learning and teaching methods:**

Lectures  
Laboratory exercises – individual experimental practice

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Kolokvij in poročilo iz vaj	50	Partial exam and report of experimental practice Written exam
Pisni izpit	50	
Opravljen kolokvij in poročilo sta pogoj za pristop k izpitu.		Partial exam and laboratory report are a 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](https://doi.org/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](#)]