



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Temelji splošne zoologije
Course title:	Fundamentals of General Zoology

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		1.; 1st	1.; 1st
Five-year master's degree program Subject Teacher			

Vrsta predmeta / Course type

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		90	5

Nosilec predmeta / Lecturer:

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

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

Prerequisites:

Vsebina:

- Osnovne značilnosti živali.
- Osnovni taksonomski in filogenetski pregled živali. Osnovna delitev živali glede na različne kriterije.
- Zunanje značilnosti glavnih skupin živali.
- Osnovna zgradba, vloga in delovanje živalskih tkiv: epitelno in žlezno tkivo, veziva in opornine, mišično tkivo, živčno tkivo.
- Osnovna zgradba, delovanje in vloga organskih sistemov in organov živali: integument, ogrodje, gibala, prehranjevanje in prebavila, dihanje in

Content (Syllabus outline):

- Basic characteristics of animals.
- Basic taxonomic and phylogenetic overview of animals. Basic division of animals according to various criteria.
- External characteristics of major animal groups.
- Basic structure, role and function of animal tissues: epithelial and gland tissues, connective and skeletal tissues, muscle tissue, nervous tissue.
- Basic structure, role and function of organ systems and organs of animals: integumentary system, skeleton, motion

dihala, organi za transport snovi, osmoregulacija, izločanje in izločala, čutila, živčevje, endokrini sistem, reproduktivni sistem.

- Osnove nespolnega in spolnega razmnoževanja ter otoplenetskega razvoja pri živalih.
- Laboratorijske vaje se navezujejo na vsebino posameznih poglavij iz predavanj s poudarkom na spoznavanju osnovne histologije in anatomije živali in njihovih struktur.

organs, feeding and digestion organs, breathing and respiratory organs, circulatory systems, osmoregulation, excretion and excretory systems, sense organs, nervous system, endocrine system, reproductive system.

- Basics of asexual and sexual reproduction and ontogenetic development in animals.
- Laboratory exercises are linked with the content of individual lectures with emphasis on basic histology and anatomy of animals and their structures.

Temeljni literatura in viri / Readings:

Hickman, C. P. Jr., Roberts, L. S., Keen, Susan L., Eisenhour, D. J., Larson, A., l'Anson, H., 2014: Integrated Principles of Zoology. McGraw Hill. New York.

Štrus, J., 2002: Splošna zoologija. 2. popravljena izd. Študentska založba. Ljubljana.

Klenovšek, T., Lipovšek Delakorda, S., 2013: Splošna zoologija : kompendij z navodili za vaje za študijski program Izobraževalna biologija. Maribor: Fakulteta za naravoslovje in matematiko, Oddelek za biologijo.

Cilji in kompetence:

Študentje bodo pridobili temeljno znanje in razumevanje:

- o osnovnih značilnostih živalskih organizmov in zakonitosti življenja živali z vidika raznolikosti in obenem enotnosti.
- osnovne zgradbe živalskih organizmov in njihovo delovanje na nivoju celic, tkiv, organov, organskih sistemov in skupnosti organizmov.
- osnovnih procesov razvoja in razmnoževanja živalskih organizmov.

Študentje bodo pridobili tudi osnovne spretnosti in praktične sposobnosti mikroskopiranja, sekcije živali, prepoznavanja in poimenovanja histoloških, morfoloških in anatomskih struktur živalskih organizmov.

Objectives and competences:

Students will gain fundamental knowledge and understanding of:

- basic characteristics of animal organisms and principles of animal life from the aspect of variation as well as uniformity.
- basic structure of animal organisms and their function on the level of cells, tissues, organs, organ systems and associations of animals.
- of the basic processes in animal development and reproduction.

Students will also gain basic skills and practical abilities for microscopy, dissection of animals, recognition and naming of histological, morphological and anatomical structures of animal organisms.

Predvideni študijski rezultati:

Intended learning outcomes:

Po opravljenem kurzu naj bi bili študentje sposobni na osnovnem nivoju:

- naštet in opisati glavne značilnosti živali.
- opisati in pojasniti osnovno taksonomsko in filogenetsko delitev živali glede na različne kriterije.
- opisati in razlikovati zunanjo telesno zgradbo glavnih skupin živali.
- opisati in razlikovati živalska tkiva in pojasniti njihovo vlogo in delovanje.
- navesti in pojasniti zgradbo, delovanje in vlogo organov in organskih sistemov pri različnih skupinah živali.
- opisati različne načine in zakonitosti spolnega in nespolnega razmnoževanja in ontogenetskega razvoja.
- samostojno mikroskopirati s svetlobnim mikroskopom.
- po navodilih samostojno in varno secirati manjšo žival.
- prepoznati in poimenovati najpomembnejše strukture na mikroskopskih in makroskopskih preparatih živali.

Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje

After the accomplished course the students should be, on basic level, able to:

- list and describe the main characteristics of the animals.
- describe and clarify the basic taxonomic and phylogietic division of animals according to different criteria.
- describe and distinguish the external body structure of the main groups of animals.
- describe and distinguish animal tissues and clarify their role and function.
- indicate and clarify the structure, function and role of organs and organ systems in different animal groups.
- describe different types of sexual and asexual reproduction and ontogenetic development.
- independetly use the light microscope.
- following instructions, independently and safely dissect a smaller animal.
- identify and name the most important structures on microscopical and macroscopic preparations of animals.

Learning and teaching methods:

- Lectures
- Laboratory excersises

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
<ul style="list-style-type: none"> • Kolokvij in poročilo iz vaj • Pisni izpit <p>Poročilo iz vaj je pogoj za pristop h kolokviju iz vaj. Opravljen kolokvij iz vaj je pogoj za pristop k izpitu.</p>	<p>50</p> <p>50</p>	<ul style="list-style-type: none"> • Report and exam from laboratory exercises • Written exam <p>Report from laboratory exercises is a prerequisite for the exam from laboratory exercises, which is both a prerequisite for the final exam.</p>

Reference nosilca / Lecturer's references:

KRYŠTUFEK, Boris, JANŽEKovič, Franc, SHENBROT, Georgy I., IVAJNŠIČ, Danijel, KLENOVŠEK, Tina. Phenotypic plasticity under desert environment constraints: mandible variation in the dwarf fat-tailed jerboa, *Pygeretmus pumilio* (Rodentia: Dipodidae). Canadian journal of zoology, ISSN 0008-4301, 2019, vol. 97, no. 10, str. 940-951, doi: 10.1139/cjz-2019-0029. [COBISS.SI-ID 24815624]

KLENOVŠEK, Tina. Modularity of the dorsal and lateral view of the skull in the European ground squirrel = Modularnost dorzalne in lateralne strani lobanje evropske tekunice. Acta biologica slovenica : ABS, ISSN 1408-3671. [Tiskana izd.], 2020, vol. 63, no. 1, str. 17-23, ilustr. [COBISS.SI-ID 27972611]

KLENOVŠEK, Tina, KRYŠTUFEK, Boris. An ontogenetic perspective on the study of sexual dimorphism, phylogenetic variability, and allometry of the skull of European ground squirrel, *Spermophilus citellus*

(Linnaeus, 1766). *Zoomorphology*, ISSN 0720-213X, 2013, vol. 132, iss. 4, str. 433-445, doi: 10.1007/s00435-013-0196-1. [COBISS.SI-ID 19948296]

KLENOVŠEK, Tina, JOJIĆ, Vida. Modularity and cranial integration across ontogenetic stages in Martino's vole, *Dinaromys bogdanovi*. *Contributions to zoology*, ISSN 1383-4517, 2016, vol. 85, no. 3, str. 275-289, ilustr. [COBISS.SI-ID 22437384]

KRYŠTUFEK, Boris, JANŽEKOVIČ, Franc, HUTTERER, Rainer, KLENOVŠEK, Tina. Morphological evolution of the skull in closely related bandicoot rats : a comparative study using geometric morphometrics. *Hystrix: the italian journal of mammalogy*, ISSN 0394-1914, 2016, vol. 27, no. 2, str. 1-7, ilustr., doi: 10.4404/hystrix-27.2-11639. [COBISS.SI-ID22920456]