



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	<b>Splošna zoologija</b>
<b>Course title:</b>	<b>Fundamentals of Zoology</b>

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	2.; 2nd
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:**

<ul style="list-style-type: none"><li>- Glavne značilnosti živih bitij</li><li>- Prokarioti, evkarioti. Avtotrofija, heterotrofija. Enoceličarji, nepravi in pravi mnogoceličarji</li><li>- Organizacijske stopnje živali</li><li>- Značilnosti živalske celice</li><li>- Osnovni tipi živalskih tkiv</li><li>- Osnovne zarodne plasti evmetazojev</li><li>- Organski sistemi evmetazojev: integument, ogrodje, gibala, prebavila, dihala, organi za transport snovi, izločala, čutila, živčevje, endokrini sistem, reproduktivni sistem.</li></ul>
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**Content (Syllabus outline):**

<ul style="list-style-type: none"><li>- The main characteristics of living beings</li><li>- Prokaryotes, eukaryotes. Autotrophy, heterotrophy. Protista, Porifera and Eumetazoa</li><li>- Organizational levels of animals</li><li>- Characteristics of animal cell</li><li>- Basic types of animal tissues</li><li>- Primary germ layers of the eumetazoans</li><li>- Organ systems of the evmetazoans: integumentary system, skeletal system, motion organs, digestion organs, respiratory organs, circulatory systems, excretory systems, sense organs, nervous</li></ul>
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- Različni načini nespolnega in spolnega razmnoževanja.

- system, endocrine system, reproductive system
- Reproduction: different methods of asexual and sexual reproduction.

### 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., 1999: Splošna zoologija. Študentska založba, Ljubljana.

Miller, S. A., Harley, J. P., 2010: Zoology. McGraw-Hill Higher education, Boston, USA.

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:

- Predstaviti glavne značilnosti živih bitij in njihov nastanek
- Predstaviti osnovne organizacijske tipe živali.
- Predstaviti osnovne tipe tkiv evmetazojev
- Predstaviti osnovno zgradbo, funkcijo ter raznolikost organov in organskih sistemov evmetazojev od nevretenčarjev do človeka
- Predstavitev in učenje metod dela: opazovanje, risanje preparatov, mikroskopija, sekcija.

### Objectives and competences:

- To present the main characteristics of living beings and their evolution.
- To present basic organizational types of animals
- To present the basic types of tissues in eumetazoans.
- To present the basic structure, function and diversity of organs and organ systems of eumetazoans from invertebrates to the human.
- Presentation and correct use of methods: observation, drawing, microscopy, section.

### Predvideni študijski rezultati:

#### Znanje in razumevanje:

- Razumevanje temeljev zoološke vede in osnovnih pojmov v zoologiji
- Razumevanje osnov življenja, evolucije in značilnosti živih bitij
- Poznavanje kompleksnosti organizacijskih oblik in osnovnih živalskih skupin
- Poznavanje osnovnih tipov tkiv, zgradbe in funkcije organov in organskih sistemov evmetazojev od nevretenčarjev do človeka
- Poznavanje in učinkovita ter pravilna uporaba nekaterih metod dela v zoologiji

#### Prenesljive/ključne spretnosti in drugi atributi:

- Sposobnost prepoznavanja osnovnih organizacijskih tipov živali, zgradbe in funkcije živalskih tkiv, organov in organskih sistemov
- Sposobnost načrtovanja in izvedbe preprostega opazovanja ter sekcije živali ali organa
- Sposobnost mikroskopiranja in interpretacije živalskih tkivnih preparatov

### Intended learning outcomes:

#### Knowledge and understanding:

- Understanding of the fundamentals of the zoological science and its terminology.
- Understanding the basics of life, evolution and the main characteristics of living beings.
- Knowledge of the complexity of organizational types and groups of animals.
- Knowledge of the basic types of tissues, structure and function of organs and organ systems of eumetazoans from invertebrates to humans.
- Knowledge of some methods in zoology

#### Transferable / Key Skills and other attributes:

- Ability to recognize the basic organizational types of animals, the structure and function of animal tissues, organs and organ systems.
- Ability to arrange a simple observations or section of an animal or its organ.
- Ability of the correct use of the light microscope and the interpretation of animal tissue

	preparations.
<b>Metode poučevanja in učenja:</b>	<b>Learning and teaching methods:</b>

<ul style="list-style-type: none"> <li>• Predavanja</li> <li>• Laboratorijske vaje</li> </ul>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Laboratory excersises</li> </ul>
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<b>Načini ocenjevanja:</b>	Delež (v %) / Weight (in %)	<b>Assessment:</b>
<ul style="list-style-type: none"> <li>• Kolokvij in poročilo iz vaj</li> </ul>	50	<ul style="list-style-type: none"> <li>• Report and exam from laboratory exercises</li> </ul>
<ul style="list-style-type: none"> <li>• Pisni izpit</li> </ul> <p>Poročilo iz vaj je pogoj za pristop h kolokviju iz vaj. Opravljen kolokvij iz vaj je pogoj za pristop k izpitu.</p>	50	<ul style="list-style-type: none"> <li>• Written exam</li> </ul> <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, KLENOVŠEK, Tina, AMORI, Giovanni, JANŽEKOVIČ, Franc. Captured in "continental archipelago" : phylogenetic and environmental framework of cranial variation in the European snow vole. *Journal of zoology*, ISSN 0952-8369, 2015, vol. 297, iss. 4, str. 270-277, doi: 10.1111/jzo.12274. [COBISS.SI-ID 21572872]

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, NOVAK, Tone, ČAS, Miran, TRILAR, Tomi, JANŽEKOVIČ, Franc. Feeding ecology of three sympatric *Sorex* shrew species in montane forests of Slovenia. *Folia Zoologica*, ISSN 0139-7893, 2013, vol. 62, no. 3, str. 193-199, ilustr. [COBISS.SI-ID 3707046]

KRYŠTUFEK, Boris, KLENOVŠEK, Tina, BUŽAN, Elena, LOY, Anna, JANŽEKOVIČ, Franc. Cranial divergence among evolutionary lineages of Martino's vole, *Dinaromys bogdanovi*, a rare Balkan paleoendemic rodent. *Journal of mammalogy*, ISSN 0022-2372, 2012, vol. 93, iss. 3, str. 818-825, doi: 10.1644/11-MAMM-A-260.2. [COBISS.SI-ID 19312904]

KLENOVŠEK, Tina. Skull modularity of the European ground squirrel *Spermophilus citellus* (Linnaeus, 1766) = Modularnost lobanje evropske tekunice *Spermophilus citellus* (Linnaeus, 1766). *Acta biologica slovenica*, ISSN 1408-3671. [Tiskana izd.], 2014, vol. 57, št. 1, str. 59-67, ilustr. [COBISS.SI-ID 20808456]