



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

| | |
|----------------------|--------------------------------|
| Predmet: | Splošna zoologija |
| Course title: | Fundamentals of Zoology |

| 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 | | 1.; 1st | 2.; 2nd |
| Undergraduate university programme Ecology with Nature Conservation, 1st degree | | | |

Vrsta predmeta / Course type Obvezni/Obligatory

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 |
|------------------------|--------------------|------------------|------------------------------|-----------------------------|-------------------------------|------|
| 45 | | | 45 | | 90 | 6 |

Nosilec predmeta / Lecturer: Tina KLENOVŠEK

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti: Potrebno je znanje o biologiji celice. **Prerequisites:** Knowledge of cell biology is required.

Vsebina:

- Uvod, zgodovinski razvoj biologije.
- Živalska celica in njene posebnosti.
- Živalska tkiva: epitelno in žlezno tkivo, veziva in opornine, mišično tkivo, živčno tkivo, nenormalna tkiva.
- Zgradba in funkcija organskih sistemov in organov: integument, skelet, gibala, telesne votline, prebavila, dihala, organi za transport snovi, izločala, čutila, živčevje, endokrini sistem, reproduktivni sistem.
- Združevanje organizmov (kolonije, kormi, jate, črede, krdela).
- Razmnoževanje in razvoj. Nespolno razmnoževanje. Spolno razmnoževanje: mejoza in gametogeneza, o semenitev, oploditev, embrionalni razvoj, postembrionalni razvoj, staranje, regeneracija in reparacija. Posebni načini razmnoževanja: partenogeneza, heterogonija, metageneza

Content (Syllabus outline):

- Introduction, history of biological science.
- Animal cell and its specificities.
- Animal tissues: epithelial and gland tissues, connective and skeletal tissues, muscle tissue, nervous tissue, abnormal tissues.
- Structure and function of organ systems and organs: integumentary system, skeleton, motion organs, body cavities, digestion organs, respiratory organs, circulatory systems, excretion systems, sense organs, nervous system, endocrine systems, reproductive systems
- Associations of animals: colonies, herds, flocks, herds.
- Reproduction and development. Asexual reproduction. Sexual reproduction: meiosis and gametogenesis, insemination, fertilization, embryonal development, postembryonic development, aging, regeneration and reparation. Special ways of reproduction: parthenogenesis, heterogony and methagenesis.

Temeljna literatura in viri / Readings:

Solomon, E. P., Berg, L. R., Martin, D. W., 2005: Biology. Thomson Brooks/Cole-Thomson Learning, Belmont, USA.

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 Biologija. Maribor: Fakulteta za naravoslovje in matematiko, Oddelek za biologijo.

Cilji in kompetence:

Pridobitev znanja o osnovnih zakonitostih življenja živali z vidika raznolikosti in obenem enotnosti. Sposobnost razumeti in pojasniti osnovno zgradbo živalskih organizmov in njihovo delovanje na nivoju celic, tkiv, organov, organskih sistemov in skupnosti organizmov. Sposobnost razumeti in pojasniti osnovne procese razmnoževanja živalskih organizmov.

Objectives and competences:

To gain knowledge on fundamental principles of animal life in aspect of variation and uniformity. To gain the understanding and ability to explain fundamental structures of animal organisms and their function on the levels of cells, tissues, organs, organ systems and associations of animals. To understand and be able to explain basic processes in animal reproduction.

Predvideni študijski rezultati:**Znanje in razumevanje:**

- Osnovnih metod eksperimentalnega dela v zoologiji.
- Struktur in funkcij živali od celice do organizma.
- Razumevanje strukturnih prilagoditev, življenjskih procesov in življenjskih ciklov pri živalih.

Prenesljive/ključne spretnosti in drugi atributi:

- Sposobnost dela z optičnim mikroskopom
- Sposobnost sekcije manjših živali
- Poznavanje osnovne zgradbe in funkcije živali od celice do organizma

Intended learning outcomes:**Knowledge and understanding:**

- of fundamental experimental methods in zoology.
- of structures and functions of animals from the cell to organismal level.
- of the structural adaptations, life processes and life cycles of animals.

Transferable/Key Skills and other attributes:

- Qualification for work with optical microscope.
- Ability of section of small animals.
- Fundamental knowledge on structure and function of animals from cell to organism.

Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje

Learning and teaching methods:

- Lectures
- Laboratory excersises

Načini ocenjevanja:

- Kolokvij in poročilo iz vaj
 - Pisni in ustni izpit
- Poročilo iz vaj je pogoj za pristop h kolokvijju iz vaj. Opravljen kolokvij iz vaj je pogoj za pristop k izpitu.

Delež (v %) /
Weight (in %)

50

50

Assessment:

- Report and exam from laboratory exercises
- Written and oral exam

Report from laboratory exercises is a prerequisite for the exam from laboratory exercises, which is both a prerequisite for the final exam.

Reference nosilca / Lecturer's references:

LIPOVŠEK DELAKORDA, Saška, JANŽEKOVIČ, Franc, NOVAK, Tone. Autophagic activity in the midgut gland of the overwintering harvestmen *Gyas annulatus* (Phalangidae, Opiliones). *Arthropod structure & development*, ISSN 1467-8039, 2014, str. 1-8, ilustr., doi: 10.1016/j.asd.2014.06.001. [COBISS.SI-ID 20696584]

NOVAK, Tone, ŠAJNA, Nina, ANTOLINC, Estera, LIPOVŠEK DELAKORDA, Saška, DEVETAK, Dušan, JANŽEKOVIČ, Franc. Cold tolerance in terrestrial invertebrates inhabiting subterranean habitats. *International journal of speleology*, ISSN 0392-6672, 2014, vol. 43, no. 3, str. r39-r46. <http://dx.doi.org/10.5038/1827-806X.43.3.3>, doi: 10.5038/1827-806X.43.3.3. [COBISS.SI-ID 20595208]

NOVAK, Tone, KOZEL, Peter. *Hadzinia ferrani*, sp. n. (Opiliones: Nemastomatidae), a highly

specialized troglobiotic harvestman from Slovenia. *Zootaxa*, ISSN 1175-5326, 2014, vol. 3841, no. 1, str. 135-145, ilustr. <http://biotaxa.org/Zootaxa/article/view/zootaxa.3841.1.8>, doi: 10.11646/zootaxa.3841.1.8. [COBISS.SI-ID 37430317]

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]

PIPAN, Tanja, FIŠER, Cene, NOVAK, Tone, CULVER, David C. Fifty years of the hypotelminorheic: what have we learned? = Petdeset let hipotelminorejika: kaj smo se naučili?. *Acta carsologica*, ISSN 0583-6050, 2012, letn. 41, št. 2/3, str. 275-285, ilustr. [COBISS.SI-ID 35117357]