



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

**Predmet:** Sistematika in filogenija nevretenčarjev  
**Course title:** Systematics and Phylogeny of Invertebrates

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Academic year	Semester Semester
Univerzitetni študijski program Ekologija z naravovarstvom, 1. stopnja	/	2.	3.
Undergraduate university Programme Ecology with nature Conservation, 1 <sup>st</sup> cycle	/	2.	3 <sup>rd</sup>

**Vrsta predmeta / Course type**

Obvezni / Compulsory

**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			30	15	120	7

**Nosilec predmeta / Lecturer:**

Vesna Klokočovnik

**Jeziki /**

**Languages:**

**Predavanja /**

**Lectures:**

Slovenski / slovenian

**Vaje / Tutorial:**

Slovenski / slovenian

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

Jih ni.

**Prerequisites:**

None.

**Vsebina:**

- Principi živalske sistematike
- Protozoa, praživali
- Porifera, spužve. Placozoa, plakozoji
- Cnidaria, ožigalkarji. Ctenophora, rebrače
- Plathelminthes, ploskavci. Mesozoa.
- "Aschelminthes": Cycloneuralia and Gnathifera
- Mollusca, mehkužci
- Nemertea, nitkarji
- Annelida, kolobarniki. Echiurida, zvezdaši
- Arthropoda, členonožci: Trilobitomorpha, Chelicerata, Mandibulata (Crustacea, Myriapoda, Hexapoda)
- Lophophorata, lofoforati.
- Chaetognatha, ščetinočeljstnice
- Hemichordata, polstrunarji. Chordata, strunarji
- Echinodermata, iglokožci
- Evolucija nevretenčarjev

**Content (Syllabus outline):**

- Coping with animal diversity
- Protozoa
- Porifera and Placozoa
- Cnidaria and Ctenophora
- Plathelminthes.Mesozoa
- "Aschelminthes": Cycloneuralia and Gnathifera
- Mollusca
- Nemertea
- Annelida. Echiurida.
- Arthropoda: Trilobitomorpha, Chelicerata, Mandibulata (Crustacea, Myriapoda, Hexapoda)
- Lophophorata
- Chaetognatha
- Hemichordata and Chordata
- Echinodermata
- Patterns of Invertebrate Evolution

**Temeljni literatura in viri / Readings:****Temeljni viri/ Basic literature:**

Brusca, R. C., W. Moore, S. M. Shuster, 2016: Invertebrates. 3rd. ed. Sinauer, Sunderland

Devetak, D., Klokočovnik, V. 2013: Praktikum iz zoologije nevretenčarjev. Fakulteta za naravoslovje in matematiko. Maribor.

**Priporočena literatura / Recommended:**

Sket, B., M. Gogala, V. Kuštor, 2003: Živalstvo Slovenije. Tehniška založba, Ljubljana

Nielsen, C. 2012: Animal evolution : interrelationships of the living phyla. Oxford University Press, Oxford.

**Cilji in kompetence:**

- Predstaviti temeljne skupine nevretenčarjev
- Podati povezavo med gradbenim planom in načinom življenja
- Predstaviti raznolikost in kompleksnost nevretenčarjev
- Podati evolucijski pristop pri študiju nevretenčarjev

**Objectives and competences:**

- To present fundamental invertebrate groups
- To give the relations between animal "Bauplan" and its environment
- To present diversity and complexity of Animal Kingdom
- To give an evolutionary approach in the study of invertebrates

**Predvideni študijski rezultati:**

Po uspešno opravljeni učni enoti naj bi bili študenti zmožni:

-opisati, primerjati in razlikovati predstavnike glavnih debel nevretenčarjev;

**Intended learning outcomes:**

By the end of this course students should be able to:

-describe, discriminate and compare traits of the invertebrate phyla;

-prepoznati nevretenčarje do nivoja redov in definirati njihove diagnostične značilnosti;  
-opredeliti in zagovarjati glavne evolucijske trende pri deblih nevretenčarjev.

-identify invertebrates to the order level and define their diagnostic traits;  
-define and justify main evolutionary trends in the invertebrate phyla.

#### Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje – individualno eksperimentalno delo
- Terensko delo

#### Learning and teaching methods:

- Lectures
- Laboratory exercises –individual experimental practice
- Field work

Delež (v %) /

#### Načini ocenjevanja:

Weight (in %)

#### Assessment:

<ul style="list-style-type: none"> <li>● Kolokvij iz vaj</li> <li>● Pisni izpit</li> </ul> <p>Pozitivno opravljen kolokvij iz laboratorijskih vaj je pogoj za pristop k izpitu.</p>	<p>50</p> <p>50</p>	<ul style="list-style-type: none"> <li>● Examination of exercises</li> <li>● Written examination</li> </ul> <p>Positive result of the exercise examination is a prerequisite for the written examination.</p>
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#### Reference nosilca / Lecturer's references:

PODLESNIK, Jan, KLOKOČOVNIK, Vesna, KLENOVŠEK, Tina, JANŽEKovič, Franc, DEVETAK, Dušan. First records of spongillaflies (Neuroptera: Sisyridae) in Serbia and Bosnia and Herzegovina, with notes on their occurrence in the Balkan countries. Turkish journal of zoology, ISSN 1300-0179, 2017, vol. 41, iss. 1, str. 164-169, ilustr., doi:10.3906/zoo-1508-48. [COBISS.SI-ID22917640]

KLOKOČOVNIK, Vesna, PODLESNIK, Jan, DEVETAK, Dušan. Occurrence of the antlion tribe Acanthaclisini in the Balkan Peninsula : (Neuroptera, Myrmeleontidae). Spixiana : Zeitschrift für Zoologie. 2016, bd. 39, h. 1, str. 99-104, ilustr. ISSN 0341-8391. [COBISS.SI-ID 22594568]

KLOKOČOVNIK, Vesna, VELER, Eva, DEVETAK, Dušan. Antlions in interaction : confrontation of two competitors in limited space. Israel journal of ecology & evolution. 2020, vol. 66, iss. 1/2, str. 73-81, ilustr. ISSN 1565-9801. DOI: 10.1163/22244662-20191058. [COBISS.SI-ID 24894216]financer: ARRS, Programi, P1-0403 (A), SI, Računsko intenzivni kompleksni sistemi

KLOKOČOVNIK, Vesna, ŠORGO, Andrej, DEVETAK, Dušan. Hands-on experiments on predatory behaviour with antlion larvae. Journal of biological education. 2016, vol. 50, no. 4, str. 384-394, ilustr. ISSN 0021-9266. DOI: 10.1080/00219266.2015.1117513. [COBISS.SI-ID 219282]

PODLESNIK, Jan, KLOKOČOVNIK, Vesna, KLENOVŠEK, Tina, DEVETAK, Dušan. Distribution of Suarius nanus (McLachlan, 1893) (Neuroptera: Chrysopidae) on the Balkan Peninsula. Acta zoologica bulgarica. 2016, vol. 68, no. 3, str. 339-342, ilustr. ISSN 0324-0770. <http://www.acta->

[zoologica-bulgarica.eu/downloads/acta-zoologica-bulgarica/2016/68-3-339-342.pdf](http://zoologica-bulgarica.eu/downloads/acta-zoologica-bulgarica/2016/68-3-339-342.pdf). [COBISS.SI-ID 22690312]