



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

<b>Predmet:</b>	<b>Sistematika in filogenija vretenčarjev</b>
<b>Course title:</b>	<b>Systematics and phylogeny of vertebrates</b>

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		2. 2nd	3. 3rd
Undergraduate university programme Ecology with Nature Conservation, 1st degree			

**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:**

Diverziteta in diagnoza vretenčarjev, Vertebrata.  
 Evolucijski nastanek strunarjev, filogenetski odnosi in adaptivna radiacija.  
 Sistematika, nomenklatura in sistematski znaki.  
 Funkcionalna anatomija vretenčarjev.  
 Zgodnji razvoj in embriologija vretenčarjev.  
 Biologija posameznih skupin vretenčarjev in njihova vloga v okolju.

**Content (Syllabus outline):**

Diversity and diagnosys of vertebrates.  
 Origin of vertebrates, phylogenetic relationships and adaptive radiations.  
 Systematics, nomenclature and systematic signs.  
 Functional anatomy of vertebrates.  
 Early development and embriology.  
 Biology of vertebrate groups and their role within the environment.

**Temeljni literatura in viri / Readings:**

- Kent G., R. K. Carr, 2001: Comparative anatomy of the vertebrates. McGraw-Hill Higher Educaton. NewYork.
- Liem, K. F., W. E. Bemis , W. F. Walker , L. Grande, 2001: Functional Anatomy of the Vertebrates. An Evolutionary Perspective. Harcourt College Publishers. Orlando.
- Kardong, K. V., 2011: Vertebrates: comparative anatomy, function, evolution. McGraw- Hill Companies. New York.
- Pough, F. H., C. M. Janis, J.B. Heiser, 2005: Vertebrate Life. Pearson Education International. New Jersey.
- Storch V., U. Welsch, 2004: Systematische Zoologie. Spektrum Akademischer Verlag Heidelberg. Berlin. Dorit, R.L., W. F. Walker, R. D. Barnes, 1991: Zoology. Saunders College Publishing. Philadelphia.
- Kalezić, M., 2001: Osnovi morfologije kičmenjaka. Zavod za udžbenike i nastavna sredstva. Beograd.
- Kryštufek, B., F. Janžekovič, 1999: Ključ za določanje vretenčarjev Slovenije. DZS. Ljubljana.

**Cilji in kompetence:**

- Podati pregled sistema vretenčarjev
- Podati biotsko - ekološke značilnosti vretenčarjev
- Predstavitev evolucijskega nastanka vretenčarjev, filogenetskih odnosov in adaptivne radiacije
- Predstavitev metod dela in znanstvenih načel v sistematiki vretenčarjev
- Predstavitev ekomorfoloških ter funkcionalno anatomskih lastnosti vretenčarjev
- Predstavitev embriološkega razvoja vretenčarjev

**Objectives and competences:**

- To give the systematic overview of vertebrates.
- To give biotic and ecological characteristics of vertebrates.
- Introduction of evolutionary origin of vertebrates, phylogenetic relationships and adaptive radiation.
- Introduction of methods and scientific principles in vertebrates systematics.
- Introduction of ecomorphological and functional anatomical characteristics of vertebrates.
- Introduction of embryological

development of vertebrates.

**Predvideni študijski rezultati:**

**Znanje in razumevanje:**

- Razumevanje filogenetskih odnosov med glavnimi skupinami vretenčarjev
- Prepoznavanje in določanje vretenčarjev
- Znanja in razumevanja ekološke vloge vretenčarjev v ekosistemih
- Znanja in razumevanja metod dela v sistematiki, taksonomiji in ekologiji vretenčarjev
- Razumevanje evlucijskih adaptacij ter njihove funkcionalne morfološko-ekološke povezanosti
- Znanja embriološkega razvoja vretenčarjev

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

- Determinacija evropskih vretenčarjev
- Presoja in interpretacija vloge vretenčarjev v ekosistemu
- Strokovno in raziskovalno delo iz ekologije in ekomorfologije vretenčarjev

**Metode poučevanja in učenja:**

- Predavanja
- Laboratorijske vaje

**Intended learning outcomes:**

**Knowledge and understanding:**

- Knowledge and Understanding:
- Understanding phylogenetic relationships among major vertebrates groups.
- Recognition and identification of vertebrates.
- Knowledge and understanding of ecological role in ecosystems.
- Knowledge and understanding of methods in systematics and ecology of vertebrates.
- Understanding of evolutionary adaptations and their functional morphological-ecological relationships.
- Knowledge of embryologic development

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

- Determination of European vertebrates
- Judgement and interpretation of vertebrates role within an ecosystem
- Expert and research work in ecology and ecomorphology of vertebrates

**Learning and teaching methods:**

- Lectures
- Laboratory excersises

**Načini ocenjevanja:**

- Ustni izpit,
- kolokvij

Delež (v %) /

Weight (in %)

**Assessment:**

- Oral exam,
- Exercises exam

**Reference nosilca / Lecturer's references:**

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 0139-7893, 2013, vol. 62, no. 3, str. 193-199, ilustr. [COBISS.SI-ID [3707046](#)]

LIPOVŠEK DELAKORDA, Saška, **JANŽEKVIČ, Franc**, LEITINGER, Gerd, RUPNIK, Marjan. Rab3a ablation related changes in morphology of secretory vesicles in major endocrine pancreatic cells, pituitary melanotroph cells and adrenal gland chromaffin cells in mice. *General and comparative endocrinology*, ISSN 0016-6480, 2013, vol. 185, str. 67-79.

<http://dx.doi.org/10.1016/j.ygcen.2013.01.007>. [COBISS.SI-ID [19733768](#)]

KRYŠTUFEK, Boris, KLENOVŠEK, Tina, VARLJEN BUŽAN, Elena, LOY, Anna, **JANŽEKVIČ, 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](https://doi.org/10.1644/11-MAMM-A-260.2). [COBISS.SI-ID [19312904](#)]