



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Sistematska zoologija
Course title:	Systematic 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	/	2	4
Five-year master's degree program Subject Teacher	/		

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		120	7

Nosilec predmeta / Lecturer:

Vesna KLOKOČOVNIK

Jeziki / Predavanja / Lectures:

slovenski / slovene

Languages:

Vaje / Tutorial:

slovenski / slovene

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

Jih ni

Prerequisites:

None

Vsebina:

- Principi živalske sistematike
- Protozoa, praživali
- Porifera, spužve
- Cnidaria, ožigalkarji.
- Plathelminthes, ploskavci.
- Nemertini, nitkarji
- Aschelminthes, valjevci
- Mollusca, mehkužci
- Annelida, kolobarniki.
- Arthropoda, členonožci: Chelicerata, pipalkarji, Crustacea, raki, Myriapoda, stonoge, Insecta, žuželke
- Lophophorata, lofoforati.
- Hemichordata, polstrunarji, Chordata, strunarji, Chaetognatha, ščetinočeljjustnice

Content (Syllabus outline):

- Coping with animal diversity
- Protozoa
- Porifera
- Cnidarians
- Plathelminths
- Nemerteans
- Aschelminths
- Molluscs
- Annelids
- Arthropods: Chelicerates, Crustaceans, Myriapods and Insects
- Lophophorates.
- Hemichordates, Chordates and Chaetognathes
- Echinoderms

• Echinodermata, iglokožci • Evolucija nevretenčarjev • Diverziteta in diagnoza vretenčarjev, • 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.	• Patterns of Invertebrate Evolution • Diversity and diagnosis of vertebrates. • Origin of vertebrates, phylogenetic relationships and adaptive radiations. • Systematics, nomenclature and systematic signs. • Functional anatomy of vertebrates. • Early development and embryology. • Biology of vertebrate groups and their role within the environment.
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Temeljni literatura in viri / Readings:

• Brusca, R. C., Moore W., Shuster, S. M., 2016: Invertebrates. 3rd. ed. Sinauer, Sunderland • Ruppert, E. E., Fox, R. S., Barnes, R. D., 2004: Invertebrate Zoology: A Functional Evolutionary Approach. 7th Edition. Belmont, CA : Thomson-Brooks/Cole • 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., 2015: Vertebrates: comparative anatomy, function, evolution. 7th edition, McGraw-Hill Companies. New York. • Nielsen, C. 2013: Animal Evolution. Interrelationships of the living Phyla. 3rd ed. Oxford University Press, Oxford. • Pough, F. H., C. M. Janis, J.B. Heiser, 2005: Vertebrate Life. Pearson Education International. New Jersey. • Sket, B., M. Gogala, V. Kuštor, 2003: Živalstvo Slovenije. Tehniška založba, Ljubljana • Storch V., U. Welsch, 2004: Systematische Zoologie. Spektrum Akademischer Verlag Heidelberg. Berlin.
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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 • Podati pregled sistema vretenčarjev • Podati biotsko - ekološke značilnosti vretenčarjev • Predstavitev evolucijskega nastanka vretenčarjev, filogenetskih odnosov in adaptivne radiacije • Predstavitev embriološkega razvoja vretenčarjev • Predstavitev ekomorfoloških ter funkcionalno anatomskih lastnosti • Predstavitev metod dela in znanstvenih načel v sistematiki
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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 • 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 embryological development of vertebrates • Introduction of ecomorphological and functional anatomical characteristics • Introduction of methods and scientific principles in systematics.
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Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje:

- Povezava med organizacijo živalskega telesa in okoljem živali
- Kompleksnost živalskih skupin
- Poznavanje biodiverzitete na svetovnem nivoju
- Razumevanje glavnih evlucijskih trendov pri živalih
- Razumevanje filogenetskih odnosov med glavnimi skupinami nevretenčarjev in vretenčarjev
- Prepoznavanje in določanje živali
- Znanja in razumevanja ekološke vloge živali v ekosistemih
- Znanja in razumevanja metod dela v sistematiki, taksonomiji in ekologiji živali
- Razumevanje evlucijskih adaptacij ter njihove funkcionalne morfološko-ekološke povezanosti
- Znanja embriološkega razvoja vretenčarjev

Prenesljive/ključne spretnosti in drugi atributi:

- Sposobnost načrtovati in izvesti preprosta opazovanja in eksperimente na živalih
- Sposobnost ovrednotiti rezultate poskusa
- 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

Knowledge and understanding:

- Relation between animal organisation and its environment
- Complexity of animal groups
- Knowledge of biodiversity at the global level
- Understanding of the major evolutionary trends among animals
- Understanding phylogenetic relationships among major invertebrates and vertebrates groups.
- Recognition and identification of animals.
- Knowledge and understanding of ecological role in ecosystems.
- Knowledge and understanding of methods in systematics and ecology of animals.
- Understanding of evolutionary adaptations and their functional morphological-ecological relationships.
- Knowledge of embryologic development in vertebrates.

Transferable/Key Skills and other attributes:

- Ability to arrange simple observations and experiments with animals
- Ability to evaluate results of an experiment
- 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:

- Praktični kolokvij
- Pisni izpit

Delež (v %) /
Weight (in %)

Assessment:

- Practical examination
- Written exam

Reference nosilca / Lecturer's references:

- KLOKOČOVNIK, Vesna, DEVETAK, Dušan, KLENOVŠEK, Tina, PODLESNIK, Jan. Contribution to the knowledge of brown lacewings from Albania : (Neuroptera, Hemerobiidae). *Spixiana : Zeitschrift für Zoologie*, ISSN 0341-8391, 2014, bd. 37, h. 2, str. 233-237. [COBISS.SI-ID [21057800](#)]

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

- DEVETAK, Dušan, KLOKOČOVNIK, Vesna. The feeding biology of adult lacewings (Neuroptera) : a review. Trends in entomology, ISSN 0972-4761, 2016, vol. 12, str. 29-42, ilustr. [COBISS.SI-ID [22624264](#)]

DEVETAK, Dušan, KLOKOČOVNIK, Vesna, LIPOVŠEK DELAKORDA, Saška, BOCK, Elisabeth, LEITINGER, Gerd. Larval morphology of the antlion *Myrmecaelurus trigrammus* (Pallas, 1771) (Neuroptera, Myrmeleontidae), with notes on larval biology. *Zootaxa*, ISSN 1175-5326, 2013, vol. 3641, no. 4, str. 491-500, ilustr.
<http://dx.doi.org/10.11646/zootaxa.3641.4.14>. [COBISS.SI-ID 19837192]

