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:	Franc JANŽEKOVIČ

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Jih ni	None

Vsebina:	**Content (Syllabus outline):**
• 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, ščetinočeljustnice	• 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 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:

- Brusca, R. C., G. J. Brusca, 2002: Invertebrates. 2nd ed. Sinauer, Sunderland
- 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., 2002: Vertebrates: comparative anatomy, function, evolution. McGraw-Hill Companies. New York.
- Nielsen, C. 1997: Animal Evolution. Interrelationships of the living Phyla. Oxford University Press, Oxford.
- Pough, F. H., C. M. Janis, J.B. Heiser, 2005: Vertebrate Life. Pearson Education International. New Jersey.
- Ruppert, E. E., R. D. Barnes, 2002: Invertebrate Zoology. 6th ed. Saunders College Publishing, Philadelphia, New York.
- Sket, B., M. Gogala, V. Kuštor, 2003: Živalstvo Slovenije. Tehniška založba, Ljubljana
- Storch V., U. Welsch, 2004: Systematische Zoologie. Spektrum Akademischer Verlag Heidelberg. Berlin.

Cilji in kompetence:	**Objectives and competences:**
• 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	• 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 vertrebrates • Introduction of ecomorphological and functional anatomical characteristics • Introduction of methods and scientific principles in systematics.

Predvideni študijski rezultati:	**Intended learning outcomes:**

Znanje in razumevanje:	**Knowledge and understanding:**
• Povezava med organizacijo živalskega telesa in okoljem živali • Kompleksnost živalskih skupin • Poznavanje biodiverzitete na svetovnem nivoju • Razumevanje glavnih evolucijskih 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 evolucijskih adaptacij ter njihove funkcionalne morfološko-ekološke povezanosti • Znanja embriološkega razvoja vretenčarjev	• 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 ecosytems. • 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 verebrates.
Prenesljive/ključne spretnosti in drugi atributi:	**Transferable/Key Skills and other attributes:**
• 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	• 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

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja • Laboratorijske vaje	• Lectures • Laboratory excersises

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
• Praktični kolokvij	50	• Practical examination
• Pisni izpit	50	• Written exam

Reference nosilca / Lecturer's references:

- DEVETAK, Dušan, NOVAK, Tone, JANŽEKOVIČ, Franc. Effect of substrate density on behaviour of antlion larvae (Neuroptera: Myrmeleontidae). *Acta oecologica*. [Print ed.], 2012, vol. 43, str. 1-7.
- LIPOVŠEK DELAKORDA, Saška, NOVAK, Tone, JANŽEKOVIČ, Franc, PABST, Maria Anna. Role of the fat body in the cave crickets Troglophilus cavicola and Troglophilus neglectus (Rhaphidophoridae, Saltatoria) during overwintering. *Arthropod struct. develop.*, 2011, vol. 40, no. 1, str. 54-63.
- KRYŠTUFEK, Boris, KLENOVŠEK, Tina, VARLJEN BUŽAN, Elena, LOY, Anna, JANŽEKOVIČ, Franc. Cranial divergence among evolutionary lineages of Martino's vole, Dinaromys bogdanovi, a rare Balkan paleoendemic rodent. *J. mammal.*, 2012, vol. 93, iss. 3, str. 818-825.
- DEVETAK, Dušan, ŠPERNJAK, Andreja, JANŽEKOVIČ, Franc. Substrate particle size affects pit building decision and pit size in the antlion larvae Euroleon nostras (Neuroptera: Myrmeleontidae). *Physiol. entomol.*, 2005, 30, 2, str. 158-163.

- JANŽEKOVIČ, Franc, KRYŠTUFEK, Boris. Geometric morphometry of the upper molars in European wood mice Apodemus. *Folia Zool. (Brno)*, 2004, let. 53, št. 1, str. 47-55.