Univerza v Mariboru
University of Maribor

Fakulteta za naravoslovje in matematiko
Faculty of Natural Sciences and Mathematics

OPIS PREDMETA / SUBJECT SPECIFICATION	
Predmet:	**Osnove ekologije in ekologija živali**
Subject Title:	**Principal and Animal Ecology**

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Biologija/Biology	Biologija/Biology	2	3

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Lab. work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
60			15	15	150	**8**

Nosilec predmeta / Lecturer: Tone NOVAK

Jeziki / Languages:	**Predavanja / Lecture:**	slovenski / Slovenian
	Vaje / Tutorial:	slovenski / Slovenian

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

Prerequisites:

Vsebina:

Predmet ekološke obravnave organizmov so njihova medsebojna razmerja ter razmerja med njimi in neživim okoljem. Organizmi so kot odprti kibernetski sistemi neprestano v interakciji z živim in neživim okoljem, pri čemer veljajo splošne zakonitosti pretoka snovi, energije in informacij. Pri ekofiziološki obravnavi so izpostavljeni splošni fiziološki mehanizmi delovanja organizmov v povezavi z določenim okoljem. Pri obravnavi ekosistemov je poudarek na kibernetskem funkcioniranju življenjskih združb v določenih življenjskih prostorih. Pokrajinski ekosistemi, biomi in ekosfera so predstavljeni sumarično. Pri obravnavi se vseskozi prepletajo ekološki, okolje- ter naravovarstveni pristop, ob primerjanju skladnosti oziroma neskladij med naravno in družbeno ekonomiko. Vzori se nanašajo na izbrane primere v svetu in v domačem okolju. Prevladuje obravnavanje

Contents (Syllabus outline):

The objectives of the ecological consideration of organisms are interaction between them, and between them and their abiotic environment. Organisms, being open kybernetic systems, continually interact with their abiotic environment, which is subjected to general laws of matter, energy and informational flux. In ecophysiological consideration, general physiological mechanisms of organismic functioning in their environment are stressed. In the ecosystem approach, the kybernetical functioning of biocoenoses in different biotops are pointed out. The land ecosystems, bioms and the ecosphaere are considered summary. The ecological, human environmental and natural preservation are compared throuhgout the lecture, focusing on the display of the in/compatibility of the natural and social

živalskih organizmov.	economics. World known cases and those in the native environment are considered. Throughout the Subject, animals are prevailably considered.

Temeljni študijski viri / Textbooks:

- Chapin, F. S., P. A. Matson & H. A. Mooney, 2002: Principles of terrestrial ecosystem ecology. Springer Verlag.
- Kalff, J., 2002: Limnology. Prentice Hall.
- Mršić N., 1997: Živali naših tal. Tehniška založba Slovenije.
- Nentwig, W., S. Bacher, C. Beierkuhnlein, R. Brandl & G. Grabherr, 2004: Ökologie. Spektrum. Akad. Verlag, Heidelberg, Berlin.
- Nybakken, J. W., 2001: Marine biology, an ecological approach. Longman.
- Odum, P. E., 1971: Fundamentals of ecology. Saunders.
- Prasad, M. N. V. (Ed.), 1997: Plant ecophysiology. John Wiley & Sons.
- Ricklefs, R. E. 2001. The Economy of Nature. W. H. Freeman & Co., New York.
- Stanners, D. & Ph. Bourdeau (eds.), 1995: Europe`s Enviromment. European Environment Agency, Copenhagen.
- Stiling, P., 2002: Ecology: theories and applications. Prentice Hall.
- Tarman, K., 1992: Osnove ekologije in ekologija živali. DZS.
- Urbanič, G. & M. J. Toman, 2003: Varstvo celinskih voda. Scripta, Ljubljana.

Cilji:	**Objectives:**
• Podati pregled osnovnih ekoloških zakonitosti, konceptov in teorij • Prikazati nekatere osnovne metode ekološkega vzorčenja • Podati pregled abiotskih in biotskih ekoloških dejavnikov • Seznaniti z najpogostejšimi ter nekaterimi izbranimi ekološkimi metodami • Analizirati antropogene vplive na naravne ekološke sisteme • Spodbujati zanimanje za ekološke raziskave in usposabljanje za načrtovanje takšnih raziskav • Načrtovati in izvesti izbrano individualno raziskovalno študijo	• To give a review of the basic ecological laws, concepts and theories. • To elucidate homeostasys and ecological steady state as biotic kybernetic mechanisms. • To give a review of abiotic and biotic environmental factors. • To introduce general and some selected ecological methods. • To analyse anthropogenous impact on natural environmental systems. • To rouse the interest for ecological investigations and training of planning such investigations. • To plan and conduct a selected individual experimental study.
Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Poznavanje in razumevanje temeljnih ekoloških zakonitosti • Razumevanje homeostaze in ekološkega ravnovesja kot osnovna biotska kibernetska mehanizma • Poznavanje glavnih abiotskih dejavnikov • Poznavanje glavnih biotskih dejavnikov • Razumevanje ekoloških procesov v kontekstu globalnih sprememb • Prepoznavanje in razumevanje ekoloških razmer v konkretnem okolju in sposobnost	Knowledge and Understanding: • Knowledge about and understanding basic ecological principles. • Understanding of homeostasis and ecosystem dynamics as basic biotic kybernetic mechanisms. • Knowledge about common abiotic factors. • Knowledge about common biotic factors. • Understanding of the ecological processes in the coontext of global changes. • Recognizing and understanding of the ecological state within a concrete

sodelovanja pri njihovi obravnavi Prenesljive/ključne spretnosti in drugi atributi: • Sposobnost splošne ocene konkretnih ekoloških razmer • Sposobnost ustrezne uporabe standardnih ekoloških laboratorijskih testov • Usposobljenost za pripravo ustreznih seznamov, tabel in grafičnih analiz	environment, and ability to take a part within discussing them. Transferable/Key Skills and other attributes: • Ability in general analysis of concrete ecological circimstances. • Ability in appropriate use of selected standard ecological laboratory tests. • Capability of preparing corresponding lists, tables and graphicons.

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

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
• Seminarska naloga • Pisni izpit	20 80	• Seminar essay • Written examination

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Materialni pogoji za izvedbo predmeta :	***Material conditions for subject realization***
• *Multimedijska predavalnica* • *Laboratorij z osnovno ekološko opremo* • *Ekskurzije na teren*	• *Lecture hall for multimedia presentations* • *Laboratory with basic ecological equipment* • *Field excursions*

Obveznosti študentov:	***Students' commitments:***
(pisni, ustni izpit, naloge, projekti)	*(written, oral examination, coursework, projects):*
• Seminarska naloga • Pisni izpit	• Seminar essay • Written examination