Univerza v Mariboru

Fakulteta za naravoslovje in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Osnove ekologije in ekologija živali
Course title:	Basic and Animal Ecology

Študijski program in stopnja Study programme and level	**Študijska smer Study field**	**Letnik Academic year**	**Semester Semester**
Univerzitetni program 1. stopnje Ekologija z naravovarstvom		2.; 2nd	3.; 3rd
Undergraduate university programme Ecology with Nature Conservation, 1st cycle			

Vrsta predmeta / Course type Obvezni / Obligatory

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	**Seminar Seminar**	**Laboratorijske vaje Laboratory work**	**Terenske vaje Field work**	**Druge oblike študija**	**Samost. delo Individ. work**	**ECTS**
60		**15**	**15**		**150**	**8**

Nosilec predmeta / Lecturer: Nina Šajna

Jeziki / Languages:	
Predavanja / Lectures:	**Slovenščina/ Slovenian**
Vaje / Tutorial:	**Slovenščina/ Slovenian**

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

Vsebina:

- Uvod v ekologijo
- Organizmi v okolju
- Pogoji in viri
- Življenjski cikli
- Ekološke aplikacije na nivoju organizmov in ene vrste
- Razširjanje, dormanca, metapopulacije
- Sobivanje in odnosi med vrstami (kompeticija, plenilstvo, parazitizem, simbioze,…)
- Abundanca
- Ekološke aplikacije na nivoju populacij
- Združbe in ekosistemi
- Pretok energije, snovi skozi ekosistem
- Prehranjevalne verige
- Vzorci vrstne pestrosti
- Ekološke aplikacije na nivoju združbe in ekosistema

Content (Syllabus outline):

- Introduction to ecology
- Organisms in their environments
- Conditions and resources
- Life histories
- Ecological applications at the level of organisms and single-species populations
- Dispersal, dormancy, metapopulations
- Species coexistence and interactions (competition, predation, parasitism, symbiosis,…)
- Abundance
- Ecological applications at the level of population interactions
- Communities and ecosystems
- The flux of energy and matter through ecosystems
- Food webs
- Patterns in species richness
- Ecological applications at the level of communities and ecosystems

Temeljni literatura in viri / Readings:

Temeljna literatura / Basic readings:

- Begon, M., Towsend C.R., Harper J.L., 2021: Ecology: From Individuals to Ecosystems. 5th edition, Wiley & Sons. (druge izdaje/other editions)

Priporočena literatura/ Recommended literature:

- Janžekovič, F. 2023: Makroekologija - analiza biodiverzitetnih podatkov, Univerza v Mariboru,
- Cain M.L., Bowman W.D., Hacker S.D., 2014: Ecology. Sinauer Associates.
- Tome, D., 2007: Ekologija. TZS.
- .

Cilji in kompetence:

- Študentje pojasnijo temeljne ekološke zakonitosti.
- Navedejo glavne abiotske in biotske dejavnike v okolju.
- Povezujejo koncepte o pogojih in virih za preživetje in sobivanje s tem povezanimi prilagoditvami osebkov.
- Spoznajo ekološke raziskave na nivoju organizma, ene vrste (avtekologija) in populacije ter jih interpretirajo.
- Pojasnijo koncept metapopulacije.
- Primerjajo medvrstne odnose.
- Navedejo definicije združb in ekosistema.
- Definirajo zakonitosti pretoka energije in snovi skozi ekosistem.
- Pojasnijo koncept prehranjevalne verige.
- Laboratorijske in terenske vaje: na primerih ekoloških raziskav uporabijo proces znanstvene metode (metode vzorčenja, vzorčenje populacij, meritve okoljskih dejavnikov,…); kritično ovrednotijo ekološke razmere v konkretnem okolju; znajo zastaviti bazično ekološko raziskavo na nivoju vrste, populacije, združbe.

Objectives and competences:

- Students are familiar with and explain basic rules in ecology.
- They specify the main abiotic and biotic factors in an environment.
- They relate concepts about conditions and resources for survival and coexistence with species' adaptations in respect to environment.
- They get introduced and are able to interpret ecological investigations on different levels: individual, single species, or population.
- They explain the concept of metapopulation.
- They compare different interspecific relationships.
- They quote the definitions of communities and ecosystems.
- They explain the rule of energy and matter flow through ecosystem.
- They explain the concept of food webs.
- Laboratory and field work: They use the process of scientific research through solving ecological case studies involving sampling, measurements of environmental factors,.. They improve their skills how to plan a basic ecological study on the level of species, population or community investigation.

Predvideni študijski rezultati:

Po uspešno opravljenih obveznostih predmeta bodopojasnili osnovne principe v ekologiji;

- predstavili pregled osnovnih abiotskih in biotskih dejavnikov;
- ilustrirali osnovna pravila, koncepte in teorije v ekologiji;
- razložili osnovne relacije med osebkom in okoljem;
- prikazali osnove populacijske ekologije;
- analizirali procese in dejavnike sobivanja osebkov in vrst;
- zagovarjali pomen ekoloških raziskav in usposobljenost za načrtovanje takšnih raziskav.

Intended learning outcomes:

At the end of the course a successful student will be able to:

- explain basic ecological principles;
- review abiotic and biotic environmental factors;
- interpret the basic ecological laws, concepts and theories;
- explain the basic relations between the individual and its environment;
- illustrate principles of population ecology;
- analyse the processes and factors enabling coexistence of individuals and species;

	• argue the importance of ecological investigations and training of planning such investigations.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja • Terenske vaje • Laboratorijske vaje • Samostojno delo	• Lectures • Field work • Laboratory work • Individual work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt) • Laboratorijsko/Terensko delo (prisotnost, dnevnik, pisni test) pogoj za pristop k izpitu • Pisni izpit	100%	Type (examination, oral, coursework, project): • Lab/Field work (attendance, reports, written exam) mandatory for the final exam • Written exam

Reference nosilca / Lecturer's references:

- ŠIPEK, Mirjana, RAVNJAK, Tim, ŠAJNA, Nina. Understorey species distinguish late successional and ancient forests after decades of minimum human intervention : a case study from Slovenia. *Forest ecosystems*. 2023, vol. 10, [article no.] 100096, 10 str.
- IPEK, Mirjana, HORVAT, Eva, ŠAJNA, Nina (avtor, korespondenčni avtor). Eastward range expansion of the ragweed leaf beetle (*Ophraella communa* LeSage, 1986) (Coleoptera, Chrysomelidae) in Slovenia. *BioInvasions Records*. 2023, vol. 12, iss. 2, str. 615-623.
- HORVAT, Eva, ŠAJNA, Nina. Exploring the impact of a non-native seed predator on the seed germination of its non-native host. *Biological invasions*. Dec. 2021, vol. 23, iss. 12, str. 3703-3717.
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