



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	Osnove ekologije in ekologija živali
<b>Course title:</b>	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**

**Univerzitetna koda predmeta / University course code:**

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
60			15	15	150	8

**Nosilec predmeta / Lecturer:**

<b>Jeziki / Languages:</b>	<b>Predavanja / Lectures:</b>	<input type="text" value="Slovenščina/ Slovenian"/>
	<b>Vaje / Tutorial:</b>	<input type="text" value="Slovenščina/ Slovenian"/>

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

**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., Townsend C.R., Harper J.L., 2006: Ecology: From Individuals to Ecosystems. John Wiley & Sons.
- Tome, D., 2007: Ekologija. TZS.

**Priporočena literatura/ Recommended literature:**

- Cain M.L., Bowman W.D., Hacker S.D., 2014: Ecology. Sinauer Associates.
- Gurevitch, J., Scheiner S., Fox G: 2002: Plant ecology. Sinauer Associates Inc. Publishers.

**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:**

## Znanje in razumevanje:

- osnovnih principov v ekologiji;
- osnovnih abiotskih in biotskih dejavnikov;
- osnovnih pravil, konceptov in teorij v ekologiji;
- osnovnih relacij med osebkom in okoljem;
- osnov populacijske ekologije;
- procesov in dejavnikov sobivanja osebkov in vrst;

**Intended learning outcomes:**

## Knowledge and Understanding:

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

- pomena ekoloških raziskav in usposabljenost za načrtovanje takšnih raziskav.

- importance of the ecological investigations and training of planning such investigations.

**Metode poučevanja in učenja:**

- Predavanja
- Terenske vaje
- Laboratorijske vaje
- Samostojno delo

**Learning and teaching methods:**

- Lectures
- Field work
- Laboratory work
- Individual work

Delež (v %) /

**Načini ocenjevanja:**

Weight (in %)

**Assessment:**

<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt)</p> <ul style="list-style-type: none"> <li>• Laboratorijsko/Terensko delo (prisotnost, dnevnik, pisni test) pogoj za pristop k izpitu</li> <li>• Pisni izpit</li> </ul>	<p>100%</p>	<p>Type (examination, oral, coursework, project):</p> <ul style="list-style-type: none"> <li>• Lab/Field work (attendance, reports, written exam) mandatory for the final exam</li> <li>• Written exam</li> </ul>
---	-------------	---

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

- ŠAJNA, Nina. (2019) First record of non-native Asian seed beetle, *Megabruchidius dorsalis* (Fåhræus, 1839) and its parasitoid, in Slovenia. *BiInvasions Records*, vol. 8.
- KARLO, Tamara, ŠAJNA, Nina. (2017) Biodiversity related understorey stability of small peri-urban forest after a 100-year recurrent flood. *Landscape and Urban Planning*, vol. 162, str. 104-114.
- ŠAJNA, Nina, KUŠAR, Primož. (2014) Modeling species fitness in competitive environments. *Ecological Modelling*, vol. 275, str. 31-36.
- ŠAJNA, Nina, KUŠAR, Primož, SLANA NOVAK, Ljuba, NOVAK, Tone. (2011) Benefits of low-intensive grazing: co-occurrence of umbelliferous plant (*Hladnikia pastinacifolia* Rchb.) and opilionid species (*Phalangium opilio*. L) in dry, calcareous grassland. *Polish Journal of Ecology*, vol. 59, str. 777-786.
- ŠAJNA, Nina, KUŠAR, Primož, SLANA NOVAK, Ljuba, NOVAK, Tone. (2009) Notes on thermo- and hygropreference in *Leiobunum roseum* C. L. Koch, 1839 (Opiliones: Sclerosomatidae) in a habitat of *Hladnikia pastinacifolia* Reichenbach, 1831 (Spermatophyta: Apiaceae). *Contributions to Natural History*, vol. 12, str. 1111-1123.