



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	<b>Entomologija in varstvo narave</b>
<b>Course title:</b>	Entomology and Nature Conservation

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Biologija in ekologija z naravovastvom, 2. stopnja	/	1,2	Poletni / zimski
Biology and Ecology with Nature Conservation, 2 <sup>nd</sup> cycle	/	1,2	Summer / Winter

**Vrsta predmeta / Course type**

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

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Lab. Vaje Laboratory work	Druge oblike študija	Samost. delo Individual work	ECTS
15	15		15		135	6

**Nosilec predmeta / Lecturer:**

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

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

Jih ni.

**Prerequisites:**

No prerequisites.

**Vsebina:**

**Content (Syllabus outline):**

- Pri predmetu je poudarek na obravnavi žuželk, čeprav se vsebine nanašajo na vse kopenske členonožce.
- Členonožci (pajkovci, raki, stonoge in žuželke) imajo pomembno vlogo v procesih v kopenskih ekosistemih. Žuželke so vrstno najobsežnejša in zato vsestransko najpomembnejša skupina členonožcev. Razumevanju vloge žuželk za ekosfero je izhodišče za vse pomembnejše področje varovanja žuželk, ki se hitro razvija. Etični temelji varstva členonožcev.
- Ciljne skupine členonožcev za naravovarstvene študije.
- Vzroki ogrožanja: od invazivnih rastlin do klimatskih sprememb.
- Metode: Vrednotenje ogroženih vrst in njihovih habitatov. Rdeči sezname in IUCN kategorije ogroženosti. Kartiranje, monitoring, varovanje.
- Ogroženi členonožci in njihovi habitati v Sloveniji. Naravovarstvena zakonodaja v Sloveniji.

- In the subject, discussions on Insects are stresses, although the contents rely to all terrestrial arthropods.
- Arthropods (arachnids, crustaceans, myriapods and insects) play important roles in terrestrial ecological processes. According to their species number, insects are the most numerous, and therefore the most important group of arthropods. Understanding of their roles in the ecosphere is the starting point of rapidly developing, and most important field of Insect conservation biology. Ethical foundation of arthropod conservation.
- Target arthropod groups for conservation studies.
- Threats: from invasive alien plants to climate change.
- Methodology: Evaluation of endangered species and their habitats. Red Data Lists and IUCN categories of endangerment. Mapping, monitoring, conservation.
- Endangered arthropods and their habitats in Slovenia. Nature conservation legislation in Slovenia.

### Temeljni literatura in viri / Readings:

#### Temeljni viri / Basic:

Samways, M. J., 2005: Insect diversity conservation. Cambridge University Press, Cambridge.

#### Priporočeni viri / Recommended:

Collins N.M. 2012: The conservation of insects and their habitats. Academic Press, London.

New T.R. (ed.) 2012: Insect conservation: past, present and prospects. Springer, Dordrecht.

Schowalter, T. D., 2016: Insect ecology. An ecosystem approach. 4th ed. Elsevier, Amsterdam.

Wermelinger, B., 2017: Insekten im Wald – Vielfalt, Funktionen und Bedeutung.

Eidg. Forschungsanstalt WSL, Birmensdorf; Haupt, Bern.

### Cilji in kompetence:

### Objectives and competences:

- Znati argumentirati, zakaj je varovanje členonožcev/žuželk žuželke pomembno
- Predstaviti glavne vzroke ogrožanja vrst členonožcev
- Predstaviti glavne metode dela – vrednotenje ogroženih vrst in njihovih habitatov, rdeči sezname in IUCN kategorije, kartiranje, monitoring, varovanje
- Poznati ogrožene členonožce in naravovarstveno zakonodajo
- Sposobnost prepoznati nekatere ogrožene členonožce Slovenije
- Sposobnost oceniti ogroženost členonožcev v določenem habitatu

- To argue, why conservation of insects/arthropods is important
- To present the threats of endangerment of arthropods
- To present fundamental methods – Evaluations, Red Data Lists and IUCN categories, mapping, monitoring, conservation
- To know endangered arthropods and nature conservation legislation
- Ability of recognizing some endangered arthropods in Slovenia
- Ability to assess endangerment of arthropods in a selected habitat

#### **Predvideni študijski rezultati:**

Po uspešno opravljeni učni enoti naj bi bili študenti zmožni:

- prepoznati temeljne skupine žuželk, ki so indikatorji sprememb v okolju;
- obravnavati temeljno vprašanje okoljske etike: katere dolžnosti ima človek v odnosu do okolja;
- zagovarjati rabo določenih žuželk pri monitoringu okolja.

#### **Intended learning outcomes:**

By the end of this course students should be able to:

- identify main groups of insects as indicators of environmental changing;
- discuss the fundamental question that environmental ethics must address: what duties do humans have with the respect to the environment;
- advocate certain insect groups in monitoring ecosystem degradation.

#### **Metode poučevanja in učenja:**

- Predavanja
- Laboratorijske vaje – individualno eksperimentalno delo

#### **Learning and teaching methods:**

- Lectures
- Laboratory exercises – individual experimental practice

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Način (pisni izpit, ustno izpraševanje, naloge, projekt): <ul style="list-style-type: none"> <li>• Kolokvij iz vaj</li> <li>• Seminarska naloga</li> <li>• Pisni izpit</li> </ul>	30 30 40	Type (examination, oral, coursework, project): <ul style="list-style-type: none"> <li>• Partial exam of experimental practice</li> <li>• Seminar essay</li> <li>• Written exam</li> </ul>

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

DEVETAK, Dušan, RAUSCH, Hubert. Checklist of lacewings (Neuropterida: Raphidioptera, Megaloptera, Neuroptera) of Albania. *Acta zoologica bulgarica*, ISSN 0324-0770, 2016, vol. 68, no. 4, str. 457-467, tabele. [COBISS.SI-ID [22863112](#)]

DEVETAK, Dušan, JAKŠIĆ, Predrag N., KLOKOČOVNIK, Vesna, KLENOVŠEK, Tina, PODLESNIK, Jan, JANŽEKOVICH, Franc, RAUSCH, Hubert. Lacewings (Neuropterida: Neuroptera, Raphidioptera) in three National Parks in the Balkan Peninsula : results of short collection trips. V: *Programme & abstracts*, 13th International Symposium of Neuropterology, 17th to 21st June 2018, Laufen/Salzach, Bavaria, Germany. [S. l.: s. n.]. 2018, str. 26. [https://www.researchgate.net/publication/326507330 Programme Abstracts XIII International Symposium of Neuropterology 17-21 June 2018 Laufen Germany](https://www.researchgate.net/publication/326507330_Programme_Abstracts_XIII_International_Symposium_of_Neuropterology_17-21_June_2018_Laufen_Germany). [COBISS.SI-ID [24235528](#)]

DEVETAK, Dušan, JAKŠIĆ, Predrag N., KLENOVŠEK, Tina, PODLESNIK, Jan, JANŽEKOVICH, Franc, IVAJNŠIČ, Danijel. Neuroptera in in two protected sand dune areas in the southern rim of the Pannonian Plain. V: *Programme & abstracts*, 13th International Symposium of Neuropterology, 17th to 21st June 2018, Laufen/Salzach, Bavaria, Germany. [S. l.: s. n.]. 2018, str. 26. [https://www.researchgate.net/publication/326507330 Programme Abstracts XIII International Symposium of Neuropterology 17-21 June 2018 Laufen Germany](https://www.researchgate.net/publication/326507330_Programme_Abstracts_XIII_International_Symposium_of_Neuropterology_17-21_June_2018_Laufen_Germany). [COBISS.SI-ID [24241160](#)]

LANGERHOLC, Eva, DEVETAK, Dušan. Mrežekrilci (Neuropterida: Megaloptera, Neuroptera) območja Natura 2000 v Sloveniji: Ličenca pri Poljčanah – ribniki Petelinjek. *Acta Entomologica Slovenica*, ISSN 1318-1998, jun. 2019, vol. 27, št. 1, str. 31-42, ilustr., v tisku.