Univerza v Mariboru

Fakulteta za naravoslovje in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Raziskovalne metode v biologiji in ekologiji**
Course title:	**Scientific methods in Biology and Ecology**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Ekologija z naravovarstvom, 1. stopnja	/	3.	6.
Ecology with Nature Conservation, 1st Cycle	/	3rd	6th

Vrsta predmeta / Course type Obvezni / Compulsory

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
15	30	15			90	5

Nosilec predmeta / Lecturer: Sonja ŠKORNIK; Saška LIPOVŠEK

Jeziki / Languages:	
Predavanja / Lectures:	slovenski / Slovenian
Vaje / Tutorial:	slovenski / Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisits:
Vsaka izmed naštetih obveznosti v načinih ocenjevanja mora biti opravljena s pozitivno oceno.	Each of the mentioned commitments must be assessed with a passing grade.

Vsebina: **Content (Syllabus outline):**

• Predstavitev različnih metod dela z organizmi, združbami organizmov in habitati. • Izbrani načini uporabe različnih tehnik mikroskopiranja, eksperimentov z organizmi v laboratoriju in na prostem. • Predstavitev različnih raziskovalnih metod, vključno z obdelavo podatkov in predstavitvijo rezultatov in diskusijo.	• Presentation of different research methods with organisms, communities and habitats. • Selected techniques of using microscope, performing experiments with organisms in the laboratory and in the field. • Presentation of different research methods, including elaboration and analysis of data, presenting the results and discussion.

Temeljni literatura in viri / Readings:

- Jones, A. M., Reed, R. H., & Weyers, J. D. B. (2003). *Practical skills in biology* (3rd ed., str. XV, 468). Pearson Prentice Hall.
- *Design and analysis of ecological experiments* (1st publ., str. XIV, 445). (1993). Chapman & Hall.

Priporočena literatura / Recommended:

- Smith, R. L., & Smith, T. M. (2001). *Ecology & field biology* (6th ed., str. 1 zv. (loč. pag.)). Addison Wesley Longman; Benjamin Cummings.

Cilji in kompetence:	**Objectives and competences:**
Študenti se seznanijo z • različnimi tehnikami in aparaturami za delo v biologiji in ekologiji. • različnimi metodami, ki se uporabljajo v biologiji in ekologiji. • pristopi zaobdelavo podatkov, predstavitev rezultatov in diskusijo.	Students get familiar with • different techniques and equipments for scientific research in biology and ecology. • different methods, which are in use in biology and ecology. • approaches for data analysis, presentation of the results and discussion.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Študenti znajo • uporabiti različne ustrezne metode dela v biologiji in ekologiji. • uporabiti različne metode analize podatkov in predstavitve rezultatov.	Knowledge and understanding: Students are able to • use various appropriate methods in biology and ecology. • use different methods for data analysis and presentation of results.

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

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
• Pisni izpit • Seminarska naloga	40 60	Written exam • Seminar paper

Reference nosilca / Lecturer's references:

Sonja ŠKORNIK:

ŠKORNIK, Sonja, PIPENBAHER, Nataša. A link between species abundance and plant strategies for semi-natural dry grasslands. *Plants*. Aug. 2024, vol. 13, iss. 16, [article no.] 2260, 17 str. ISSN 2223-7747. https://www.mdpi.com/2223-7747/13/16/2260, Digitalna knjižnica Univerze v Mariboru – DKUM, DOI: 10.3390/plants13162260, DOI: 20.500.12556/DKUM-90232. [COBISS.SI-ID 205162243]

BIURRUN, Idoia, PIELECH, Remigiusz, DEMBICZ, Iwona, GILLET, François, KOZUB, Łukasz, MARCENÒ, Corrado, REITALU, Triin, VAN MEERBEEK, Koenraad, GUARINO, Riccardo, CHYTRÝ, Milan, PIPENBAHER, Nataša, **ŠKORNIK, Sonja**, et al. Benchmarking plant diversity of Palaearctic grasslands and other open habitats. *Journal of vegetation science*. [Online ed.]. Jul./Aug. 2021, vol. 32, iss. 4, 21 str. ilustr. ISSN 1654-1103. https://onlinelibrary.wiley.com/doi/pdf/10.1111/jvs.13050, DOI: 10.1111/jvs.13050. [COBISS.SI-ID 78991619]

ŠKORNIK, Sonja, PAUŠIČ, Igor, NOVAK, Tone, JANŽEKOVIČ, Franc, IVAJNŠIČ, Danijel, TOSTOVRŠNIK, Mihaela, KOZEL, Peter. Environmental factors influencing the distribution of habitat types in the highlands of the Kamnik - Savinja Alps. *Plant Biosystems*. 2022, vol. 156, no. 3, str. 710-721, ilustr. ISSN 1126-3504. DOI: 10.1080/11263504.2021.1918780. [COBISS.SI-ID 64326915]

Saška LIPOVŠEK:

LIPOVŠEK DELAKORDA, Saška, NOVAK, Tone, DARIŠ, Barbara, HOFER, Ferdinand, LEITINGER, Gerd, LETOFSKY-PAPST, Ilse. Ultrastructure of spherites in the midgut diverticula and Malpighian tubules of the harvestman Amilenus aurantiacus during the winter diapause. *Histochemistry and cell biology*. Jan. 2022, vol. 157, iss. 1, str. 107-118, ilustr. ISSN 0948-6143. DOI: 10.1007/s00418-021-02046-0. [COBISS.SI-ID 83684611]

LIPOVŠEK DELAKORDA, Saška, KOZEL, Peter, LEITINGER, Gerd, NOVAK, Tone. Malpighian tubules in harvestmen. *Protoplasma*. 2021, vol. 258, iss. 5, str. 1145-1153, ilustr. ISSN 0033-183X. DOI: 10.1007/s00709-021-01634-0. [COBISS.SI-ID 57977603]

SERDINŠEK, Tamara, **LIPOVŠEK DELAKORDA, Saška,** LEITINGER, Gerd, BUT, Igor, STOŽER, Andraž, DOLENŠEK, Jurij. A novel in situ approach to studying detrusor smooth muscle cells in mice. *Scientific reports*. 2020, vol. 10, art. no. 2685, 1-12 str., ilustr. ISSN 2045-2322. https://www.nature.com/articles/s41598-020-59337-0#citeas, DOI: 10.1038/s41598-020-59337-0. [COBISS.SI-ID 512962616]