



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
Biologija, 1. stopnja	/	3.	6.
Biology, 1 st cycle degree	/	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:

Vsaka izmed naštetih obveznosti v načinih ocenjevanja mora biti opravljena s pozitivno oceno.

Prerequisites:

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 habitatih. • 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.
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Temeljni literatura in viri / Readings:

• Jones, A. M., Reed, R. H., & Weyers, J. D. B. (2003). <i>Practical skills in biology</i> (3rd ed., str. XV, 468). Pearson Prentice Hall. • <i>Design and analysis of ecological experiments</i> (1st publ., str. XIV, 445). (1993). Chapman & Hall. • Janžekovič, F. (2023). <i>Makroekologija: analiza biodiverzitetnih podatkov</i> (1. izd., str. IV, 512). Univerzitetna založba. https://press.um.si/index.php/ump/catalog/book/734 Priporočena literatura / Recommended: • Smith, R. L., & Smith, T. M. (2001). <i>Ecology & field biology</i> (6th ed., str. 1 zv. (loč. pag.)). Addison Wesley Longman; Benjamin Cummings.
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Cilji in kompetence:

Študenti se seznanijo z • različnimi tehnikami in aparaturami za delo v biologiji in ekologiji, • različnimi metodami, ki se uporabljajo v biologiji in ekologiji, • pristopi za obdelavo podatkov, predstavitev rezultatov in diskusijo.
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Objectives and competences:

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:

Znanje in razumevanje: Študenti znajo • uporabiti različne ustrezne metode dela v biologiji in ekologiji. • uporabiti različne metode analize podatkov in predstavitve rezultatov.
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Intended learning outcomes:

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.
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Metode poučevanja in učenja:

• Predavanja • Seminarji • Laboratorijske vaje
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Learning and teaching methods:

• Lectures • Seminars • Laboratory work

Delež (v %) /

Načini ocenjevanja:

Weight (in %)

Assessment:

• Pisni izpit • Seminarska naloga	40 60	• Written exam • Seminar paper
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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](https://doi.org/10.3390/plants13162260), DOI: [20.500.12556/DKUM-90232](https://doi.org/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](https://doi.org/10.1111/jvs.13050). [COBISS.SI-ID [78991619](#)]

ŠKORNIK, Sonja, PAUŠIČ, Igor, NOVAK, Tone, JANŽEKOVICH, 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1038/s41598-020-59337-0). [COBISS.SI-ID [512962616](#)]