



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Biogeografija
Course title:	Biogeography

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Univerzitetni program 1. stopnje Biologija		2.; 2nd	4.; 4th
Undergraduate university programme Biology, 1st cycle			

Vrsta predmeta / Course type:

Obvezni / Obligatory

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Terenske vaje Field work	Samost. delo Individ. work	ECTS
30				30	90	5

Nosilec predmeta / Lecturer:

Nina ŠAJNA

**Jeziki /
Languages:**

**Predavanja /
Lectures:**

Slovenski/Slovenian

Vaje / Tutorial:

Slovenski/Slovenian

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

Jih ni

Prerequisites:

None

Vsebina:

Content (Syllabus outline):

• Definicije in zgodovina biogeografije • Fizično okolje • Distribucija osebkov, populacij in vrst na Zemlji • Biomi, ekosistemi, združbe: vzorci razširjenosti, biogeografske regionalizacije • Disperzije in migracije vrst • Speciacija in izumrtje • Kladistična, filogenetska in molekularna biogeografija • Paleobiogeografija, vključno s pleistocensko dinamiko Evrope • Endemizem, vikarianca • Otoška biogeografija • Ekografija: velikost, oblika in abundanca arealov in populacij • Varstvena biogeografija • Sonaravni pristopi varovanja biosfere • Terminologija fitogeografije in zoogeografije • Biogeografska regionalizacija	• Definitions and history of biogeography • Physical environment • Distribution of individuals, populations and species on Earth • Biomes, ecosystems, communities: patterns of distribution • Dispersion and migration of species • Speciation and extinction • Cladistic, phylogenetic and molecular biogeography • Paleobiogeography, including Pleistocene dynamics in Europe • Endemism, vicariance • Island biogeography • Ecography: size, shape, abundance of ranges and populations • Conservational biogeography • Sustainable methods for biosphere protection • Phytogeographic and zoogeographic terminology; they learn biogeographical regionalisation on the basis of knowledge of vegetation evolution
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Temeljni literatura in viri / Readings:

Temeljna literatura / Basic readings:

- Cox, C. B., Moore, P. D., & Ladle, R. J. (2016). *Biogeography: an ecological and evolutionary approach* (9th ed., str. XIII, 482 , 10 pril.). Wiley Blackwell. (in druge izdaje/and other editions)
- Lomolino, M. V., Riddle, B. R., & Whittaker, R. J. (2018). *Biogeography: biological diversity across space and time* (5th ed., str. XV, 759). Sinauer.
- Lovrenčak, F. (2003). *Osnove biogeografije* (str. 410). Filozofska fakulteta, Oddelek za geografijo.

Cilji in kompetence:

- Povežejo lastnosti fizičnega okolja z zakonitostmi razširjenosti osebkov, populacij in vrst na Zemlji.
- Naštejejo biome, ekosisteme, združbe ter pojasnijo njihove vzorce razširjenosti.
- Pojasnijo pojave disperzije in migracije ter specijacij in izumiranja.
- Navedejo glavne izsledke filogeografije in paleobiogeografije.
- Prikličejo primere endemizma in vikariance.

Objectives and competences:

- Students correlate the physical environment with distributions of individuals, populations and species on Earth.
- Students list biomes, ecosystems, communities and explain their patterns of distribution.
- Students explain the phenomena of dispersion, migration, speciation, and extinction.
- Students tell the basic principles of phylogeography and paleobiogeography.

- Pojasnijo teorijo otoške biogeografije in osnove ekografije.
- Povežejo temeljna znanja biogeografije z uporabo v varstveni biologiji.
- Pojasnijo razprostranjenost rastlinstva in živalstva na Zemlji, s posebnim poudarkom na območju Slovenije.
- Naštejejo regionalizacijske kriterije biocon.

- On case studies they identify examples of endemism and vicariance.
- Students explain island biogeography and principles of ecography.
- Students connect biogeography knowledge with conservational biology.
- They explain the plant and animal distribution on Earth, with an emphasis to the territory of Slovenia.
- They list the criteria of biozones regionalisation.

Predvideni študijski rezultati:

Po uspešno opravljenih obveznostih predmeta bodo:

- interpretirali zveze med značilnostmi fizičnega okolja ter evolucijskimi in ekološkimi vzorci razširjenosti organizmov na Zemlji;
- primerjali povezave izsledkov filogeografije, paleobiogeografije in ekografije v naravovarstvu;
- opisali biosfero in njene sestavine v Sloveniji
- predstavili razprostranjenosti lokalnih in regionalnih biocon na Zemlji;
- analizirali biogeografske vzorce in procese v naravnem okolju preko izvedenih terenskih ekskurzij in vaj.

Intended learning outcomes:

- At the end of the course a successful student will be able to: interpret relations between environmental characteristics, and evolutionary and ecological based principles of distribution of organisms on the Earth;
- compare relations of phylogeography, paleobiogeography and ecography in conservational issues;
 - describe the biosphere and its compartments in Slovenia;
 - illustrate the dispersion of local and regional biozones on the Earth;
 - analyse biogeographical patterns and processes in natural environment within the field work.

Metode poučevanja in učenja:

- Predavanja
- Terenske vaje
- Individualno delo

Learning and teaching methods:

- Lectures
- Field work and excursion
- Individual work

Načini ocenjevanja:

- Pisni izpit

Delež (v %) /

Weight (in %)

Assessment:

- Written exam

Reference nosilca / Lecturer's references:

Šipek, M., Horvat, E., & Šajna, N. (2023). Eastward range expansion of the ragweed leaf beetle (*Ophraella communa* LeSage, 1986) (Coleoptera, Chrysomelidae) in Slovenia. *BioInvasions Records*, 12(2), 615–623. <https://dk.um.si/IzpisGradiva.php?id=87570>

Horvat, E., Šipek, M., & Šajna, N. (2024). Urban hedges facilitate spontaneous woody plants. *Urban Forestry and Urban Greening*, 96(1) 128336, 11. <https://dk.um.si/IzpisGradiva.php?id=88564>

- Šajna, N., Urek, T., Kušar, P., & Šipek, M. (2023). The importance of thermally abnormal waters for bioinvasions - a case study of *Pistia stratiotes*. *Diversity*, 15(3, [] 421), 22. <https://dk.um.si/IzpisGradiva.php?id=88134>
- Šipek, M., Horvat, E., & Šajna, N. (2022). First records of seed beetles *Megabruchidius dorsalis* (Fåhræus, 1839) and *M. tonkineus* (Pic, 1904) from three Balkan countries. *BioInvasions Records*, 11(1), 101–109. <https://dk.um.si/IzpisGradiva.php?id=88628>