



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	Biogeografija
<b>Course title:</b>	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:**

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

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

**Nosilec predmeta / Lecturer:**

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

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

**Prerequisites:**

**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

### Temeljni literatura in viri / Readings:

#### Temeljna literatura / Basic readings:

- Cox, C. B., Moore, P. D., 2005: Biogeography. An Ecological and Evolutionary approach. Blackwell Publishing. Malden, USA. (in druge izdaje/and other issues)
- Lovrenčak, F., 2003: Biogeografija. Študijsko gradivo za geografe. Filozofska fakulteta, Ljubljana.

#### Priporočena literatura/ Recommended literature:

- Grabherr, G., 1997: Farbatlas Oekosysteme der Erde. Ulmer Verlag.
- Lomolino, M. V., 2006: Biogeography. Third Edition. Sinauer Associates, Inc., Sunderland, USA.
- Quammen, D., 1996: Song Of The Dodo: Island Biogeography In An Age Of Extinctions. Scribner, New York, USA.

### 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.

### 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.

- Prikličejo primere endemizma in vikariance.
- 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.

- Students tell the basic principles of phylogeography and paleobiogeography.
- 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:**

- Znanje in razumevanje:
- zveze med značilnostmi fizičnega okolja ter evolucijskimi in ekološkimi vzorci razširjenosti organizmov na Zemlji;
  - povezav izsledkov filogeografije, paleobiogeografije in ekografije v naravovarstvu;
  - biosfere in njenih sestavin v Sloveniji
  - razprostranjenosti lokalnih in regionalnih biocon na Zemlji;
  - biogeografskih vzorcev in procesov v naravnem okolju preko izvedenih terenskih ekskurzij in vaj.

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

- Knowledge and Understanding:
- of relations between environmental characteristics, and evolutionary and ecological based principles of distribution of organisms on the Earth;
  - of relations of phylogeography, paleobiogeography and ecography in conservational issues;
  - of the biosphere and its compartments in Slovenia;
  - the dispersion of local and regional biozones on the Earth;
  - of 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

<b>Načini ocenjevanja:</b>	<b>Delež (v %) / Weight (in %)</b>	<b>Assessment:</b>
• Terensko delo (prisotnost, pisni test) pogoj za pristop k izpitu	20	• Field work (attendance, written exam) mandatory for the final exam
• Pisni izpit	80	• Written exam

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

- ŠAJNA, Nina. (2017) Habitat preference within its native range and allelopathy of garlic mustard *Alliaria petiolata*. Polish Journal of Ecology, vol. 65, str. 46-56.

- ŠAJNA, Nina, KAVAR, Tatjana, ŠUŠTAR VOZLIČ, Jelka, KALIGARIČ, Mitja. (2012) Population genetics of the narrow endemic *Hladnikia pastinacifolia* Rchb. (Apiaceae) indicates survival in situ during the Pleistocene. *Acta Biologica Cracoviensia. Series Botanica*, vol. 54, str. 84-96.
- ŠAJNA, Nina, HALER, Maja, ŠKORNIK, Sonja, KALIGARIČ, Mitja. (2007) Survival and expansion of *Pistia stratiotes* L. in a thermal stream in Slovenia. *Aquatic Botany*, vol. 87, str. 75-79.
- KALIGARIČ, Mitja, BOHANEK, Borut, SIMONOVIK, Biljana, ŠAJNA, Nina. (2008) Genetic and morphologic variability of annual glassworts (*Salicornia* L.) from the Gulf of Trieste (Northern Adriatic). *Aquatic Botany*, vol. 89, str. 275-282.
- KALIGARIČ, Mitja, SEDONJA, Jožef, ŠAJNA, Nina. (2008) Traditional agricultural landscape in Goričko Landscape Park (Slovenia) : distribution and variety of riparian stream corridors and patches. *Landscape and Urban Planning*, vol. 85, str. 71-78.