



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

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

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Univerzitetni program 1. stopnje Biologija		2	4
Biology, 1st degree		2	4

**Vrsta predmeta / Course type:**

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

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
30				30	90	5

**Nosilec predmeta / Lecturer:**

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

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

**Prerequisites:**

#### Vsebina:

- 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
- Osnove filogeografije
- Paleobiogeografija, vključno s pleistocensko dinamiko
- Endemizem, vikarianca
- Otoška biogeografija
- Ekografija: velikost, oblika in abundanca arealov in populacij
- Varstvena biogeografija
- Sonaravni pristopi varovanja biosfere
- Študentje poznajo terminologijo fitogeografije in zoogeografije; na osnovi poznavanja

#### Content (Syllabus outline):

- 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
- Principles of phylogeography. Paleobiogeography
- Pleistocene dynamics including
- Endemism, vicariance
- Island biogeography
- Ecography: size, shape, abundance of ranges and populations
- Conservational biogeography
- Sustainable methods for biosphere protection

historičnega razvoja rastlinstva se seznanijo z biogeografsko regionalizacijo

- Students know phytogeographic and zoogeographic terminology; they learn biogeographical regionalisation on the basis of knowledge of vegetation evolution

### Temeljni literatura in viri / Readings:

- Breckle, S. W., 2002: Walter's Vegetation of the Earth. Springer Verlag.
- Cox, C. B., Moore, P. D., 2005: Biogeography. An Ecological and Evolutionary approach. Blackwell Publishing. Malden, USA.
- Grabherr, G., 1997: Farbatlas Oekosysteme der Erde. Ulmer Verlag.
- Lomolino, M. V., 2006: Biogeography. Third Edition. Sinauer Associates, Inc., Sunderland, USA.
- Lovrenčak, F., 2003: Biogeografija. Študijsko gradivo za geografe. Filozofska fakulteta, Ljubljana.
- MacDonald, G. M., 2003: Biogeography: Introduction to Space, Time, and Life. Wiley, London, UK.
- Quammen, D., 1996: Song Of The Dodo: Island Biogeography In An Age Of Extinctions. Scribner, New York, USA.

### Cilji in kompetence:

- Seznanijo se s fizičnim okoljem in zakonitostmi razširjenosti osebkov, populacij in vrst na Zemlji
- Spoznajo biome, ekosisteme, združbe ter njihove vzorce razširjenosti
- Poznajo pojave disperzije in migracije ter speciacija in izumiranja
- Spoznajo osnove filogeografije in paleobiogeografije
- Na primerih spoznajo endemizem in vikarianco
- Spoznajo teorijo otoške biogeografije in osnove ekografije
- Uvedejo se v varstveno biogeografijo
- Poznajo razprostranjenost rastlinstva in živalstva na Zemlji, s posebnim poudarkom na območju Slovenije
- Poznajo regionalizacijske kriterije biocon

### Objectives and competences:

- Students learn the physical environment and principles of distribution of individuals, populations and species
- Students are introduced to biomes, ecosystems, communities and get insights into their patterns of distribution
- Students learn phenomena of dispersion, migration, speciation, and extinction.
- Students get insights about principles of phylogeography and paleobiogeography
- On case studies they are introduced to endemism and vicariance
- Students learn island biogeography and principles of ecography
- Students are introduced to conservational biogeography
- They get knowledge of plant and animal distribution in the Earth, with an emphasis on the territory of Slovenia
- They know the criteria of biozones regionalisation.

### Predvideni študijski rezultati:

- Znanje in razumevanje:
- Študenti so sposobni najti zveze med značilnostmi fizičnega okolja ter evolucijskimi in ekološkimi vzorci razširjenosti organizmov na Zemlji
  - Študenti so sposobni izsledke filogeografije, paleobiogeografije in ekografije aplicirati v naravovarstvu
  - Študenti spoznavajo biosfero in njene sestavine v Sloveniji
  - Razumejo razprostranjenost lokalnih in regionalnih biocon na Zemlji

### Intended learning outcomes:

- Knowledge and Understanding:
- Students are capable to find relations between environmental characteristics, and evolutionary and ecological based principles of distribution of organisms on the Earth
  - Students are capable to apply the outputs of phylogeography, paleobiogeography and ecography in conservational issues
  - They provide knowledge of the biosphere and its compartments in Slovenia
  - They understand the dispersion of local and regional biozones on the Earth.

Prenesljive/ključne spretnosti in drugi atributi:

- Terensko opazovanje in postavljanje hipotez
- Razumevanje biogeografskih vzorcev in procesov v naravnem okolju

Transferable/Key Skills and other attributes:

- Field observations and making hypotheses
- Understanding of biogeographical patterns and processes in natural environment

**Metode poučevanja in učenja:**

- Predavanja
- Seminar
- Terenske vaje
- Individualno delo

**Learning and teaching methods:**

- Lectures
- Seminar
- Field work and excursion
- Individual work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
• Ustni izpit	20	• Oral exam
• Pisni izpit	80	• Written exam

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

- ŠAJNA, Nina, HALER, Maja, ŠKORNIK, Sonja, KALIGARIČ, Mitja. Survival and expansion of *Pistia stratiotes* L. in a thermal stream in Slovenia. *Aquat. bot.*. [Print ed.], July 2007, vol. 87, iss. 1, str. 75-79. <http://www.sciencedirect.com/science/journal/03043770>. [COBISS.SI-ID 15379464]
- KALIGARIČ, Mitja, BOHANEK, Borut, SIMONOVIK, Biljana, ŠAJNA, Nina. Genetic and morphologic variability of annual glassworts (*Salicornia* L.) from the Gulf of Trieste (Northern Adriatic). *Aquat. bot.*. [Print ed.], 2008, vol. 89, iss. 3, str. 275-282. <http://dx.doi.org/10.1016/j.aquabot.2008.02.003>, doi: 10.1016/j.aquabot.2008.02.003. [COBISS.SI-ID 15855880]
- KALIGARIČ, Mitja, SEDONJA, Jožef, ŠAJNA, Nina. Traditional agricultural landscape in Goričko Landscape Park (Slovenia) : distribution and variety of riparian stream corridors and patches. *Landsc. urban plan.*. [Print ed.], 21 March 2008, vol. 85, iss. 1, str. 71-78, ilustr. <http://dx.doi.org/10.1016/j.landurbplan.2007.09.012>. [COBISS.SI-ID 15674376]
- ŠAJNA, Nina, KUŠAR, Primož, SLANA NOVAK, Ljuba, NOVAK, Tone. Notes on thermo- and hygro-preference in *Leiobunum roseum* C. L. Koch, 1839 (Opiliones: Sclerosomatidae) in a habitat of *Hladnikia pastinacifolia* Reichenbach, 1831 (Spermatophyta: Apiaceae). *Contrib. nat. hist.*, Dec. 2009, no. 12, str. 1111-1123, ilustr. [COBISS.SI-ID 17427720]
- ŠAJNA, Nina, KUŠAR, Primož, SLANA NOVAK, Ljuba, NOVAK, Tone. Benefits of low-intensive grazing: co-occurrence of umbelliferous plant (*Hladnikia pastinacifolia* Rchb.) and opilionid species (*Phalangium opilio* L) in dry, calcareous grassland. *Pol. J. Ecol.*, 2011, vol. 59, issue 4, str. 777-786, ilustr. [COBISS.SI-ID 18921992]