Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Geo-informatika v biologiji in ekologiji**
Course title:	**Geoinformatics in Biology and Ecology**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Doktorski študij Ekološke znanosti, 3. stopnja **Doctoral Study Ecological Sciences, 3rd degree**		**1. ali 2.;** **1st or 2nd**	**1.- 4.;** **1st-4th**

Vrsta predmeta / Course type Izbirni/Elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Lab. vaje Laboratory work	Terenske vaje Field work	Samost. delo Individ. work	ECTS
10	5		15		150	6

Nosilec predmeta / Lecturer: Danijel Ivajnšič

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisits:
Jih ni.	None.

Vsebina:

- Nastanek, obdelava in uporaba prostorskih podatkov v biologiji in ekologiji
- Metode daljinskega zaznavanja
- Primeri uporabe satelitskih posnetkov (podob), orto-foto posnetkov in LIDAR podatkov v biologiji in ekologiji
- Transformacija, klasifikacija in uporaba podob za namene raziskav v biologiji in

Content (Syllabus outline):

- The development, processing and application of geospatial data in biology and ecology
- Remote sensing methods
- The use of satellite imagery, ortho-foto imagery and LIDAR data in biology and ecology
- Transformation, classification and application of remote sensed data for

ekologiji	research in biology and ecology

Temeljni literatura in viri / Readings:

- Awange, J.L., Kyalo Kiema, J.B., 2013. Environmental Geoinformatics: Monitoring and Management. Springer-Verlag Berlin Heidelberg. (izbrana poglavja)
- Warner, T.A., Campagna, D.J., 2009. Remote sensing with IDRISI Tajga. Geocarto Internatinal Center, Hong Kong. (izbrana poglavja)
- Oštir, K., 2006: Daljinsko zaznavanje. Inštitut za antropološke in prostorske študije ZRC SAZ. (izbrana poglavja)
- Ciglič, R., Geršič, M., Perko, D., Zorn, M., 2016: GIS v Sloveniji 13: Digitalni podatki, Geografski inštitut Antona Melika ZRC SAZU. Ljubljana. (izbrana poglavja)

Cilji in kompetence:	**Objectives and competences:**
- Študentje pojasnijo tehnologijo daljinskega zaznavanja v biologiji in ekologiji - Študentje uporabljajo podatke daljinskega zaznavanja - Študentje uporabljajo različne prakse obdelave podatkov daljinskega zaznavanja - Študenti pojasnijo uporabo in aplikatevno vrednost rezultatov metod daljinskega zaznavanja v luči biologije in ekologije	• Students explain the technology of remote sensing in biology and ecology • Students use remote sensing data • Students use different practices for processing remote sensing data • Students explain the use and applicative value of the results of remote sensing methods in the light of biology and ecology

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: - Šudentje uporabljajo podatke pridobljenje z metodami daljinskega zaznavanja v biologiji in ekologiji	**Knowledge and understanding:** - Students use data acquisition using remote sensing methods in biology and ecology
Prenesljive/ključne spretnosti in drugi atributi: - Študentje pridobivajo, procesiraj in uporabljajo podatke daljinskega zazavanja	**Transferable/Key Skills and other attributes:** - Študentje pridobivajo, procesiraj in uporabljajo podatke daljinskega zazavanja
Metode poučevanja in učenja:	**Learning and teaching methods:**

- Predavanje - Seminar - Laboratorijske vaje - Individualno delo	- Lectures - Seminar - Laboratory work - Individual work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
• Seminarska naloga • Pisni izpit	20% 80%	• Seminar • Written exam

Reference nosilca / Lecturer's references:

- KALIGARIČ, Mitja, IVAJNŠIČ, Danijel. Habitat changes caused by sea level rise, driven by climate change in the Northern Adriatic coastal wetlands, Slovenia. V: RANNOW, Swen (ur.), NEUBERT, Marco (ur.). *Managing protected areas in Central and Eastern Europe under climate change*, (Advances in global change research, ISSN 1574-0919, vol. 58). Dordrecht [etc.]: Springer, cop. 2014, str. 233-242.

- IVAJNŠIČ, Danijel, KALIGARIČ, Mitja. How to preserve coastal wetlands, threatened by climate change-driven rises in sea level. *Environmental management*, ISSN 0364-152X, 2014, vol. 54, iss. 4, str. 671-684, ilustr., doi: 10.1007/s00267-014-0244-8.

- IVAJNŠIČ, Danijel, ŠAJNA, Nina, KALIGARIČ, Mitja. Primary succession on re-created coastal wetland leads to successful restoration of coastal halophyte vegetation. *Landscape and urban planning*, ISSN 0169-2046. [Print ed.], 2016, vol. 150, str. 79-86, ilustr., doi: 10.1016/j.landurbplan.2016.03.005.

- KRYŠTUFEK, Boris, ZORENKO, Tanya, ATANASOV, Nasko, BONTZORLOS, Vasileios, IVAJNŠIČ, Danijel. Ecological Niche Modelling yields insight into temporal range dynamics of the arvicoline rodent Microtus hartingi in Europe. *Hystrix, the Italian Journal of Mammology* (v recenziji), 2017.

- IVAJNŠIČ, Danijel, KALIGARIČ, Mitja, FANTINATO, Edy, DEL VECCIO, Silvia, BUFFA, Gabriella. The fate of coastal habitats in the Venice Lagoon from the sea level rise perspective. *Applied Geography* (v recenziji), 2017.