Univerza v Mariboru

Fakulteta za naravoslovje in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Sodobna biologija**
Course title:	**Modern Biology**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Izobraževalna fizika		**1**	**2**
Educational Physics			

Vrsta predmeta / Course type	obvezni
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
30	**30**				**120**	**6**

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:	**Prerequisits:**
Ni pogojev.	None.

Vsebina:	**Content (Syllabus outline):**
Od gena do ekosistema: novi pogledi na evolucijo in sistematsko razdelitev organizmov. Vrste in ekosistemi v spreminjajočem se okolju: uničenje in spremembe habitatov, globalne klimatske spremembe. Biodiverzitetna kriza in njeno reševanje (varstvena biologija, ponovna vzpostavitev stanja)	From gene to ecosystem: new prospects on evolution and systematics of organisms Species and ecosystems in a changing environment: habitat loss and habitat change, global climate change. Selected fields from up-to-date subjects (basics of biotechnology, cell biology, GMO) and their impact on environment and human society

Izbrana področja aktualnih vsebin (osnove biotehnologije, celične biologije, GSO) ter njihovi vplivi na okolje in človeško družbo	Biodiversity crisis and coping with this problem (conservation biology, restoration)

Temeljni literatura in viri / Readings:

1. Begon, M., Towsend C.R., Harper J.L., 2006: Ecology: From Individuals to Ecosystems. John Wiley & Sons.
2. Rannow S., Neubert M., 2014: Managing protected areas in Central and Eastern Europe under climate change, (Advances in global change research 58). Springer.
3. Ausden M., 2007: Habitat Management for Conservation: A Handbook of Techniques. Oxford.
4. Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., Walter, P., 2004: Molecular Biology of the Cell (5thEd.). Garland Science, Taylor & Francis Group, New York.
5. Thieman W. J. in Palladino M. A., 2004: Introduction to Biotechnology, Pearson Education, Inc,

Cilji in kompetence:	**Objectives and competences:**
Dobiti vpogled v sodobna dognanja biološke znanosti od genov do ekosistemov	To get insights into recent findings of life sciences from genes to ecosystems

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Razumeti vpliv novih dognanj vede o življenju na preživetje človeške populacije in na pojasnjevanje osnovnih konceptov o evoluciji, ekologiji, varstvu,… **Prenesljive/ključne spretnosti in drugi atributi:** Nadgraditi, razširiti in aktualizirati predhodno znanje študentov o biologiji s sodobnimi znanstvenimi odkritji. Sposobnost razumeti osnovne vidike življenja na genetskem, vrstnem in ekosistemskem nivoju v luči novih znanstvenih dognanj. Sposobnost razumeti vpliv okoljskih sprememb na živa bitja in njihovo okolje.	**Knowledge and Understanding:** To understand the influence of new findings in life sciences on human survival and their help explain the basic concepts about evolution, ecology, conservation,… **Transferable/Key Skills and other attributes**: Improve, widen and update the basic knowledge of students about biology with latest scientific findings. Ability to evaluate proceses at the level of genes, species and ecosystems according to new scientific findings. Ability to understand the the impact of environmental changes on biota and their environment.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja Seminar Individualno delo	Lectures Seminar essay Individual work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Seminarska naloga	**50**	Seminar essay
Pisni izpit	**50**	Written exam

Reference nosilca / Lecturer's references:

- ŠAJNA, Nina, KUŠAR, Primož (2014) Modeling species fitness in competitive environments. Ecological modelling, 2014, vol. 275, str. 31-36.
- ŠAJNA, Nina, KALIGARIČ, Mitja, IVAJNŠIČ, Danijel. (2014) Reproduction biology of an alien invasive plant : a case of drought-tolerant *Aster squamatus* on the Northern Adriatic seacoast, 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). Springer, 279-288.
- ŠAJNA, Nina, MEISTER, Margit H., BOLHÁR-NORDENKAMPF, Harald R., KALIGARIČ, Mitja (2013) Response of semi-natural wet meadow to natural geogenic CO2 enrichment. International journal of agriculture and biology, 15, no. 4, str. 657-664.
- 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, 54, 1, 84-96
- KALIGARIČ, Mitja, MEISTER, Margit H., ŠKORNIK, Sonja, ŠAJNA, Nina, KRAMBERGER, Branko, BOLHÁR-NORDENKAMPF, Harald R. (2011) Grassland succession is mediated by umbelliferous colonizers showing allelopathic potential. Plant Biosystems, 145, 3, 688-698,
- ŠKORNIK, Sonja, ŠAJNA, Nina, KRAMBERGER, Branko, KALIGARIČ, Simona, KALIGARIČ, Mitja. (2008) Last remnants of riparian wooded meadows along the middle Drava River (Slovenia) : species composition is a response to light conditions and management. Folia geobotanica, vol. 43, no. 4, str. 431-445.
- 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, iss. 1, str. 71-78,
- 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, iss. 1, str. 75-79.