



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Organizmi v spreminjajočem se okolju
Course title:	Organisms in changing environment

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Izobraževalna biologija 2. stopnja		2.	3
Educational Biology 2nd degree		2.	3

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
15	15			15	135	6

Nosilec predmeta / Lecturer:

Jeziki / Languages:	Predavanja / Lectures:	Slovenščina/ Slovenian
	Vaje / Tutorial:	Slovenščina/ Slovenian

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

Prerequisites:

Vsebina:

Ekologi želijo razumeti dinamike organizmov in njihove odnose z okoljem. Okoljske spremembe, ki imajo močan vpliv na fizikalne in biološke sisteme, so v zadnjih stoletjih predvsem povzročene s strani človeka in večanjem človeške populacije. Zato je ključno razumevanje vpliva človekovih dejavnosti: povečane emisije toplogrednih plinov, ki povzročajo globalno segrevanje, nalaganje dušika, uničevanje habitatov, drobljenje krajine, prekomerna raba ekosistemskih uslug in vnos tujerodnih vrst. Posebej zaskrbljujoč je učinek na biodiverzitetu in ekosistemске usluge.

Content (Syllabus outline):

Ecologists aim to understand the dynamics of organisms and their relationships with their environment. In the last centuries environmental changes, which have profound impact on physical and biological systems, have been mainly induced by human population development. Therefore it is crucial to understand the impact of human activities: increases in greenhouse gas emissions, causing global climate warming, nitrogen deposition, habitat destruction, landscape fragmentation, overuse of ecosystem services and alien species introductions. Of particular concern is the effect on biological diversity and ecosystem services.

Temeljni literatura in viri / Readings:

- Begon, M., Townsend C.R., Harper J.L., 2006: Ecology: From Individuals to Ecosystems. John Wiley & Sons.
- Cain M.L., Bowman W.D., Hacker S.D., 2014: Ecology. Sinauer Associates.
- Rannow S., Neubert M., 2014: Managing protected areas in Central and Eastern Europe under climate change, (Advances in global change research 58). Springer.
- Kinzig A.P., Pacala S.W., Tilman D., 2002: Functional Consequences of Biodiversity: Empirical Progress and Theoretical Extensions. Princeton University Press.
- Ausden M., 2007: Habitat Management for Conservation: A Handbook of Techniques. Oxford.

Dodatna literatura/ Additional literature:

- <http://www.californiaeei.org/curriculum/>

Cilji in kompetence:

Bodoči učitelji morajo razumeti pomen biodiverzitete, zgradbe in dinamike ekosistemov za usluge, ki jih naša družba prejema od naravnih in s strani človeka upravljanjih ekosistemov. Pomembno je razumevanje, kako zagotoviti okoljsko in družbeno trajnost glede na globalno povečano človekovo populacijo in rabo virov.

Objectives and competences:

Prospective teachers need to understand the importance of biological diversity, structure and dynamics of ecosystems for the benefits that our society receives from natural and managed ecosystems, as well as, how to assure environmental and social sustainability in the face of global increases in human consumption and population.

Predvideni študijski rezultati:

Znanje in razumevanje:
Študentje poznajo in razumejo pomen in razloge za biodiverzitetu. Vedo, kakšni so učinki biodiverzitete na stabilnost ekosistemov. Poznajo ekosistemske usluge, ki jih naša družba prejema od naravnih in s strani človeka upravljanjih ekosistemov. Razumejo, kakšen vpliv imajo človekove aktivnosti na biodiverzitetu. Spoznajo različne tehnike upravljanja z naravo za potrebe varstva biodiverzitete.

Intended learning outcomes:

Knowledge and understanding:
Students are familiar with and understand basic reasons for biotic diversity. They know how biodiversity affects stability and functioning of ecosystems. They are familiar with ecosystem services which our society receives from natural and managed ecosystems. They understand the impact of human activities on biodiversity. They get introduced into a range of techniques used to manage land for biodiversity conservation.

Metode poučevanja in učenja:

- Predavanja
- Seminar
- Laboratorijske vaje

Learning and teaching methods:

- Lectures
- Seminar
- Laboratory work

Načini ocenjevanja:

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Način (pisni izpit, ustno izpraševanje, naloge, projekt)		Type (examination, oral, coursework, project):
<ul style="list-style-type: none"> • Terensko delo (prisotnost, dnevnik, pisni test) pogoj za pristop k izpitu 	20%	<ul style="list-style-type: none"> • Field work (attendance, reports, written exam) mandatory for final exam
<ul style="list-style-type: none"> • Seminarsko delo • Pisni izpit 	80%	<ul style="list-style-type: none"> • Seminar work • Written exam

Reference nosilca / Lecturer's references:

- 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: RANNO, 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, KUŠAR, Primož. (2014) Modeling species fitness in competitive environments. Ecological modelling, 2014, vol. 275, str. 31-36.

- 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.
- 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.