



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Bioinvazije
Course title:	Bioinvasions

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Univerzitetni program 1. stopnje Biologija		2. ali 3.	3. ali 5.
Undergraduate university programme Biology, 1st cycle		2nd or 3rd	3rd or 5th

Vrsta predmeta / Course type

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Teren. vaje Field work	Druge oblike študija	Samost. delo Individ. work	ECTS
20		5	20		135	6

Nosilec predmeta / Lecturer:

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

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

Vsebina:
Content (Syllabus outline):

Predmet obravnava bioinvazije - pojavljanja novih, tujerodnih vrst. Poglobljeno bo predstavljena ekološka teorija kolonizacije in invazivnosti vrst. Vsebina bo osredotočena na:

- Ekologijo introdukcije (načini, omogočanje, učinkovitost, filtri,...),
- Kritično analizo aktualnih hipotez, ki razlagajo uspešnost tujerodnih vrst rastlin in živali,
- Značilnosti invazivnih rastlin in živali,
- Baze prostodostopnih podatkov o tujerodnih vrstah
- Okoljske in ekonomske posledice bioinvazij,
- Globalno problematiko bioinvazij,
- Pregled načinov upravljanja bioinvazij (prakse, biokontrola, ...),
- Primere študij bioinvazij kopenskih, morskih in sladkovodnih habitatov.

Vaje bodo vključevale delo z računalnikom in praktično spoznavanje konkretnih primerov na terenu.

The course will provide in-depth insight into the ecological theory of colonization and invasion of alien species. Content will focus on:

- the ecology of introductions (pathways, enabled establishment, efficiency, filters,...)
- critical analysis of existing hypotheses, that try to explain the success of alien plant and animal species
- characteristics of invasive plants and animals
- open databases about alien species
- environmental and economic consequences of bioinvasions
- global threat by bioinvasions
- overview of management of bioinvasions (biocontrol,...)
- case studies of bioinvasions in terrestrial, marine, and freshwater habitats.

Tutorial and field work will include work with a computer and introduction to examples in the field.

Temeljni literatura in viri / Readings:

Temeljna literatura/Basic literature:

- Kutnar L., Marinšek A., Kus Veenvliet J., Jurc D., Ogris N., et al. 2020. *Terenski priročnik za prepoznavanje tujerodnih vrst v gozdovih*. 3., dopolnjena izd. Ljubljana: Silva Slovenica, Gozdarski inštitut Slovenije, 202 str., ilustr.
- Alagič A., Baxerres B., Berger F., Bindewald A.M. et al. 2022. Priročnik za prepoznavanje tujerodnih drevesnih vrst v alpskem prostoru. https://www.alpine-space.org/projects/alptrees/books/alptrees_id_book_slo_kl_1.pdf
- Anna Traveset, David M. Richardson 2020. *Plant Invasions - The Role of Biotic Interactions* ISBN 9781789242171
- Wolfgang Nentwig 2008. *Biological Invasions*. 2. izdaja, Springer-Verlag Berlin and Heidelberg GmbH & Co. KG , 446 str.
- Jonathan Jeschke, Tina Heger 2018. *Invasion Biology - Hypotheses and Evidence*, CABI, 188 str.

Priporočena literatura/Recommended literature:

- periodične znanstvene revije *Biological Invasions*, *Invasion Biology*, *BioInvasions Records*, *CABI Invasives Series* in podobne

Cilji in kompetence:

Študenti bodo pridobili informacije o raznolikosti invazivnih vrst in kompleksnosti naraščajoče problematike bioinvazij. Pri praktičnih vajah se bodo posvečali analizi podatkov in nadgradili svoje razumevanje kompleksnosti bioinvazij.

Objectives and competences:

Students will get the information about diversity of invasive species and complexity of the increasing problems by bioinvasions. Practical work will engage students in data analysis and will increase their understanding of the complexities of bioinvasions.

Predvideni študijski rezultati:

Študenti bodo sposobni:

- opredeliti vlogo različnih ekoloških komponent, ki sodelujejo v procesu introdukcije,
- diskutirati raznolike hipoteze, ki pojasnjujejo invazivnost,
- prepoznati značilnosti invazivnih vrst in poiskati relevantne informacije o njih,
- prepoznati grožnje in izzive povzročene z bioinvazijami
- ovrednotiti pristope upravljanja bioinvazij
- uporabiti znanje iz obravnavanih primerov študij bioinvazij za razlago predstavljenih konceptov.

Intended learning outcomes:

Students will be able to:

- evaluate the role of different ecological components involved in the process of introduction
- discuss various hypotheses explaining invasiveness
- recognize the characteristics of invasive species and search for relevant information about them
- recognize the threats and challenges caused by bioinvasions
- evaluate approaches of bioinvasions management
- use the knowledge about case studies and examples in the field to explain concept presented.

Metode poučevanja in učenja

Predavanja
Seminarske vaje
Terenske vaje

Learning and teaching methods:

Lectures
Tutorials
Field work

Načini ocenjevanja:

Pisni izpit

Delež (v %) /

Weight (in %)

Assessment:

100%

Written exam

Reference nosilca / Lecturer's references:

1. HORVAT, Eva, ŠAJNA, Nina. Exploring the impact of a non-native seed predator on the seed germination of its non-native host. *Biological invasions*. 2021, vol. 23, iss. 12, str. 3703-3717.
2. ŠIPEK, Mirjana, HORVAT, Eva, ŠAJNA, Nina (avtor, korespondenčni avtor). Eastward range expansion of the ragweed leaf beetle (*Ophraella communa* LeSage, 1986) (Coleoptera, Chrysomelidae) in Slovenia. *BioInvasions Records*. 2023, vol. 12, iss. 2, str. 615-623, ilustr. ISSN 2242-1300.
3. HORVAT, Eva, ŠAJNA, Nina. First record of the Asian seed beetle *Megabruchidius dorsalis* (Fåhræus, 1839) (Coleoptera, Chrysomelidae, Bruchinae) in Croatia. *BioInvasions Records*. 2021, vol. 10, issue 2, str. 477-482.
4. ŠIPEK, Mirjana, ŠAJNA, Nina. Public opinions and perceptions of peri-urban plant invasion: the role of garden waste disposal in forest fragments. *Management of Biological Invasions*. Nov. 2020, vol. 11, iss. 4, str. 733-746. ISSN 1989-8649.
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