



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Ekološki procesi
Course title:	Ecological Processes

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

Vrsta predmeta / Course type

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	10		5	5	150	6

Nosilec predmeta / Lecturer:

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

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

Vsebina:	Content (Syllabus outline):
<ul style="list-style-type: none">• Dinamika in funkcija ekosistemov v prostoru in času• Ekološke sukcesije in invazije• Pregled pristopov, konceptov, modelov o stabilnosti, prožnosti in trajnostnosti ekosistemov• Persistenca in razširjenost rastlin in živali• Mehanizmi sobivanja (koeksistence),	<ul style="list-style-type: none">• Dynamics and functions of ecological systems at multiple spatial and temporal scales• Ecological successions and invasions• Overview of approaches, concepts and models of ecosystem stability, resilience and sustainability• Persistence and distribution of plants and animals

- alelopatije, facilitacije
- Učinek globalnih sprememb na ekološke procese

- Mechanisms of coexistence, allelopathy, facilitation
- Global Change impact on ecological processes

Temeljni literatura in viri / Readings:

Temeljna literatura / Basic readings:

- Dietze MC: Ecological Forecasting. 2017. Princeton University Press
- Kelly, C.K., Bowler, M.G., and Fox, G.A. (eds.), 2013. Temporal dynamics and ecological process. Cambridge University Press
- ŠAJNA, Nina, KUŠAR, Primož. (2014) Modeling species fitness in competitive environments. Ecological modelling, vol. 275, str. 31-36.

Priporočena literatura/ Recommended literature:

- Palmeri, L., Barausse, A., Jørgensen, S.E., 2014. Ecological Processes Handbook. CRC Press, Boca Raton.
- Wilkinson, D., 2006. Fundamental processes in ecology: an earth systems approach. – Oxford Univ. Press.

Cilji in kompetence:

- Analiza dinamike in funkcij ekosistemov v različnih prostorskih merilih (lokalno-globalno) in v različnih časovnih okvirih (sukcesije).
- Ovrednotenje pomena stabilnosti, prožnosti in trajnostnosti ekosistemov na primerih npr. bioloških invazij.
- Diskutiranje o dejavnikih za persistenco in razširjenost rastlin in živali na primerih.
- Kritično ovrednotenje mehanizmov sobivanja.
- Diskutirati učinek globalnih sprememb na ekološke procese.

Objectives and competences:

- Analysis of ecosystem dynamics and functions in various space (local-global) and time frames (e.g. succession).
- Evaluation of the meaning of ecosystem stability, resilience and sustainability on the cases of biological invasions.
- Discussion of factors defining persistence and distribution of plants and animals.
- Critical evaluation of coexistence mechanisms.
- Discussing the effect of global change on ecological processes.

Predvideni študijski rezultati:

Študenti bodo sposobni:

- ovrednotiti ekološke procese (npr. sukcesije, biološke invazije) in funkcij;
- diskutirati spreminjanje ekoloških procesov v prostoru in času;
- ovrednotiti primere konceptov: stabilno sobivanje, časovna dinamika niše, dinamika kompetitivnega izključevanja

Intended learning outcomes:

Student will be able to:

- evaluate ecological processes (e.g. succession, biological invasions) and functions;
- discuss spatial and temporal variation of ecological processes;
- evaluate concepts: stable coexistence, temporal niche dynamics, dynamics of

in drugi;

- diskutirati vpliv globalnih sprememb in njihovih interferenc z ekološkimi procesi.

competitive exclusion etc. with case studies;

- discuss the impact of global change on ecological processes.

Metode poučevanja in učenja:

- Predavanja
- Seminar
- Terenske vaje
- Laboratorijske vaje
- Individualno delo

Learning and teaching methods:

- Lectures
- Seminar
- Field work
- Laboratory work
- Individual work

Delež (v %) /

Načini ocenjevanja:

Weight (in %)

Assessment:

<ul style="list-style-type: none"> • Seminar work 	25%	<ul style="list-style-type: none"> • Seminar work
<ul style="list-style-type: none"> • Laboratorijsko/Terensko delo (prisotnost, dnevnik, pisni test) pogoj za pristop k izpitu 	25%	<ul style="list-style-type: none"> • Lab/Field work (attendance, reports, written exam) mandatory for final exam
<ul style="list-style-type: none"> • Pisni končni izpit 	50%	<ul style="list-style-type: none"> • Written final exam

Reference nosilca / Lecturer's references:

- ŠAJNA, Nina, UREK, Tina, KUŠAR, Primož, ŠIPEK, Mirjana. The importance of thermally abnormal waters for bioinvasions - a case study of *Pistia stratiotes*. *Diversity*. 2023, vol. 15, iss. 3, [article no.] 421, 22.
- ŠIPEK, Mirjana, RAVNJAK, Tim, ŠAJNA, Nina. Understorey species distinguish late successional and ancient forests after decades of minimum human intervention : a case study from Slovenia. *Forest ecosystems*. 2023, vol. 10, [article no.] 100096, 10 str.
- ŠIPEK, Mirjana, KUTNAR, Lado, MARINŠEK, Aleksander, ŠAJNA, Nina. Contrasting responses of alien and ancient forest indicator plant species to fragmentation process in the temperate lowland forests. *Plants*. Dec. 2022, vol. 11, iss. 23, 13
- HORVAT, Eva, ŠAJNA, Nina. Exploring the impact of a non-native seed predator on the seed germination of its non-native host. *Biological invasions*. Dec. 2021, vol. 23, iss. 12, str. 3703-3717.
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