



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

**Predmet:** *Izbor iz biologije rastlin*  
**Course title:** Selection in Plant Biology

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. 2. ali 3. ; 1st, 2nd or 3rd
Doctoral Study Ecological Sciences, 3rd degree			

**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
5			5		140	5

**Nosilec predmeta / Lecturer:**

Sonja ŠKORNIK

**Jeziki /**

**Predavanja / Lectures:**

slovenski / slovene

**Languages:**

**Vaje / Tutorial:**

slovenski / slovene

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

Poznavanje biologije rastlin na ravni univerzitetnega programa.

**Prerequisites:**

Knowledge of plant biology at graduate level.

**Vsebina:**

- Izbrana poglavja s področja življenjskih strategij rastlin: funkcionalne poteze rastlin (FPR), določanje FPR, vpliv FPR na delovanje ekosistemov.
- Izbrana poglavja s področja alelopatije: laboratorijski testi, aplikacije v naravi.
- Izbrana poglavja iz biologije semen: morfologija, kalitev, semenske banke.
- Izbrana poglavja iz arheobotanike.

**Content (Syllabus outline):**

- Selected topics in plant life strategies: Plant functional traits (PFT), standardised measurements of PFT, effects of PFT on ecosystem properties.
- Selected topics in allelopathy: laboratory tests, application in nature.
- Selected topics in seed biology: morphology, germination, seed banks.
- Selected topics in archaeobotany.

## Temeljni literatura in viri / Readings:

- N. Pérez-Harguindeguy in sod., 2013: New handbook for standardised measurement of plant functional traits worldwide, Australian Journal of Botany, 61 (3) 167-234.
- Cheema Z.A., M. Farooq A. Wahid (ur.), 2012: Allelopathy: Current Trends and Future Applications. Springer Berlin Heidelberg.
- Dakshini, K. M. M., C. L. Foy, 1999: Principles and practices in plant ecology. Allelochemical interactions. CRC Press.
- Nicolas, G., K. J. Bradford, D. Come, H. W. Pritchard (eds.), 2004: The biology of seeds. Recent research advances. CABI Publishers.
- Reigoza, M. J., N. Pedrol, L. Gonzales, 2005: Allelopathy: a physiological process with ecological implications. Springer Verlag.
- Zohary, D., M. Hoph, 2001: Domestication of Plants in the Old World : The Origin and Spread of Cultivated Plants in West Asia, Europe, and the Nile Valley. Oxford University Press.

## Cilji in kompetence:

- Študenti se seznanijo s sodobnimi standardiziranimi metodami za vzorčenje in analize funkcionalnih potez rastlin.
- Študenti podrobno spoznajo povezanost strukture in funkcije na izbrani skupini rastlin – travniške in grmiščne vrste, vrste prodišč, inp. ter možnimi aplikacijami v biologiji in ekologiji.
- Študenti se seznanijo z izbranimi poglavji iz alelopatije in možnimi aplikacijami v ekologiji in kmetijstvu.
- Študenti se podrobno seznanijo z morfologijo in fiziologijo semem ter s pomenom semen za oblikovanje rastlinskih skupnosti.
- Študenti dobijo podroben vpogled v izbrane metode in raziskave arheobotanične stroke, s poudarkom na Evropi in Sredozemlju.

## Objectives and competences:

- Students learn about modern standardized methods for sampling and analysis of plant functional traits.
- Students learn in detail the complexity of structure and function on selected group of plants – grassland and scrub plant species, plant species of river bars, etc., and possible implications in biology and ecology.
- Students learn the selected topics in allelopathy and possible implications in ecology and agriculture.
- Students learn in detail the morphology and physiology of seeds and the importance of seeds for plant assemblage.
- Students get advanced insights of methods and research of archaeobotany, especially of the Mediterranean and Europe.

## Predvideni študijski rezultati:

### Znanje in razumevanje:

- Študenti v podrobnosti razumejo povezanost strukture in funkcije na izbranih rastlinskih objektih.
- Podrobno se seznanijo z metodami vzorčenja in obdelave podatkov pri proučevanju funkcionalnih potez rastlin.
- Podrobno se seznanijo z metodami v arheobotaniki v zvezi z izbrano skupino rastlin.

### Prenesljive/ključne spretnosti in drugi atributi:

- Študenti v podrobnosti usvojijo metod in praktično delo v proučevanju funkcionalnih potez rastlin, alelopatije, morfologije in fiziologije semen izbranih rastlinskih organizmov.
- Študenti v podrobnosti poznajo izbrane metode dela v arheobotaniki v zvezi z izbrano skupino rastlin.

## Intended learning outcomes:

### Knowledge and understanding:

- Students understand in detail the complexity of structure and function on selected plant organisms.
- Students understand in detail principles, methods of sampling and data analyses in the study of plant functional traits.
- Students understand in detail principles and methods in archaeobotany with respect to the selected plant group.

### Transferable/Key Skills and other attributes:

- Students capture in detail selected methods and practices in plant functional traits research, in allelopathic research, morphology and physiology of seeds on selected plant organisms.
- Students get advanced knowledge about methodologies in archaeobotany on selected plant organisms.

**Metode poučevanja in učenja:**

- Predavanja
- Praktično laboratorijsko delo

**Learning and teaching methods:**

- Lectures
- Laboratory practice

		Delež (v %) / Weight (in %)	Assessment:
<b>Načini ocenjevanja:</b>			
• Kolokvij iz vaj praktičnega laboratorijskega dela		30 %	• Partial exam of laboratory practice
• Seminaraska naloga in njena predstavitev		30 %	• Seminar essay and its defense
• Pisni izpit		40 %	• Written exam

**Reference nosilca / Lecturer's references:**

PIPENBAHER, Nataša, KALIGARIČ, Mitja, MASON, Norman W. H., ŠKORNIK, Sonja. Dry calcareous grasslands from two neighboring biogeographic regions: relationship between plant traits and rarity. *Biodiversity and conservation*, ISSN 0960-3115, 2013, vol. 22, iss. 10, str. 2207-2221, doi: [10.1007/s10531-013-0520-6](https://doi.org/10.1007/s10531-013-0520-6). [COBISS.SI-ID [19978504](#)]

ŠKORNIK, Sonja, HARTMAN, Klavdija, KALIGARIČ, Mitja. Relation between CSR functional signatures of dry grasslands from two contrasting geological substrates = Relazione tra sigle funzionali CSR di pascoli aridi su due substrati geologici contrastanti. *Annales, Series historia naturalis*, ISSN 1408-533X, 2010, vol. 20, št. 2, str. 101-112, ilustr. [COBISS.SI-ID [18252040](#)]

KALIGARIČ, Mitja, MEISTER, Margit H., ŠKORNIK, Sonja, ŠAJNA, Nina, KRAMBERGER, Branko, BOLHÁR-NORDENKAMPF, Harald R. Grassland succession is mediated by umbelliferous colonizers showing allelopathic potential. *Plant Biosystems*, ISSN 1126-3504, 2011, vol. 145, no. 3, str. 688-698, ilustr. [COBISS.SI-ID [18617608](#)]

PAUŠIČ, Igor, ŠKORNIK, Sonja, CULIBERG, Metka, KALIGARIČ, Mitja. Weed diversity in cottage building material used in 19th century : past and present of the plant occurrence. *Polish journal of ecology*, ISSN 1505-2249, 2010, vol. 58, iss. 3, str. 577-583, ilustr. [COBISS.SI-ID [17578760](#)]