



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	<b>Sistematska botanika</b>
<b>Course title:</b>	<b>Systematic botany</b>

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Enovit magistrski študijski program druge stopnje Predmetni učitelj	/	1	2
Five-year master's degree program Subject Teacher	/		

**Vrsta predmeta / Course type**

Obvezni / Obligatory

**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
45			30	15	60	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:**

Jih ni

**Prerequisites:**

No.

**Vsebina:**

- Uvod: razlaga pojmov, pomen in cilji sistematike in taksonomije, razvoj klasifikacije in sistemov, metode klasifikacije, sistematski nivoji in poimenovanja, botanično delovanje na Slovenskem
- Predstavitev skupin organizmov po organizacijskih tipih. (1) prokariotske alge (modrozeleni cepljivke), (2) glive (prave glive), (3) evkariotske alge (evglenofiti, dinofiti, heterokontofiti, rodofiti, klorofiti), (4) embriofiti (mahovi, praprotnice, semenke/enokaličnice in dvokaličnice). Za vsako skupino so na primerih njenih najbolj tipičnih in/ali znanih predstavnikov predstavljene njene morfološke značilnosti, načini razmnoževanja in ekologija. Poudarjena sta evlucijski aspekt in filogenija.

**Content (Syllabus outline):**

- Introduction: explanation of basic term, meaning and aims of systematic and taxonomy, development of classification and systems, methods of classification, systematic categories and nomenclature, botanical activity in the past in Slovenia
- Presentation of groups of plants according to organization types: (1) prokaryotic algae (Cynobacteriota), (2) fungi (Eumycota), (3) eukaryotic algae (Euglenophyta, Dinophyta, Heterokontophyta, Rhodophyta, Chlorophyta) (4) Embryophyta (Bryophyta, Pteridophyta, Spermatophyta / monocotyledons/dicotyledones). For each group the morphological characteristics, types of reproduction and ecology are presented on the basis of their typical and/or known

representatives. The evolutionary aspect and phylogeny are stressed.

### Temeljni literatura in viri / Readings:

- Campbell, N.A. in J.B.Reece, 2005. Biology. 7th edition, Pearson/Benjamin Cummings, San Francisco.
- Moore, R. s sod. 1998. Botany. 2<sup>nd</sup> Edition
- Graham E. L. & Wilcox W. L., 1999: Algae. Prentice Hall, USA.
- Heywood, V., 1995: Cvetnice. Kritosemenke sveta. DZS, Ljubljana.
- Martinčič, A. (ed.), 2007. Mala flora Slovenije. Tehniška založba, Ljubljana.
- Raven, P.H. 2005. Biology of Plants. W.H.Freeman and Company /Worth Publishers
- P. Sitte s sod. 2002. Der Botanik für Hochschulen: begründet von E. Strasburger. 35. Aufl. Heidelberg, Berlin : Spektrum Akademischer Verlag

### Cilji in kompetence:

- Razložiti osnovne pojme v povezavi s sistematiko in taksonomijo
- Predstaviti razvoj sistematike skozi zgodovino in najbolj uporabljene metode
- Predstaviti skupine organizmov (morfologijo, razmnoževanje, ekologijo), ki jih prištevamo k rastlinam na osnovi njihovih najbolj tipičnih in znanih predstavnikov
- Razložiti izvor in razvoj posameznih predstavljenih skupin
- Primerno predstaviti floro Slovenije

### Objectives and competences:

- To explain basic terms related to systematic and taxonomy
- To present development of systematic through the history and the most often used methods
- To present groups of organisms (morphology, reproduction, ecology), which are grouped among the plants on the basis of their most typical and known representatives
- To explain the origin and evolution of separate represented groups
- To present the flora of Slovenia

### Predvideni študijski rezultati:

#### Znanje in razumevanje:

- Poznati osnovne pojme v povezavi s sistematiko in taksonomijo
- Poznati razvoj klasifikacije in sistemov skozi zgodovino
- Poznati nekaj najbolj uporabnih metod klasifikacije
- Poznati osnovne skupine organizmov, ki jih obravnavamo v okviru sistematike rastlin in sicer na osnovi morfologije, razmnoževanja in ekologije najbolj tipičnih predstavnikov posameznih skupin
- Razumeti izvor in razvoj posameznih skupin

#### Prenesljive/ključne spretnosti in drugi atributi:

- Sposobnost prepoznavnja tipičnih predstavnikov modrozelenih cepljivk, alg, gliv, lišajev, mahov in praprotnic
- Prepoznavanje vseh lesnih vrst Slovenije,
- Sposobnost prepoznavnja družin in nekaterih rodov semenk
- Določanje praprotnic in semenk po dihonomnem ključu

### Intended learning outcomes:

#### Knowledge and understanding:

- To distinguish term systematic and taxonomy
- To know the evolution of classification and systems through the history
- To know some mostly used classification methods
- To know the basic groups of organisms, which we treat in the frame of plant systematic on the basis of the morphology, reproduction and ecology of the most typical representatives for the each group
- To understand the origin and evolution of separate plant groups

#### Transferable/Key Skills and other attributes:

- Capability of recognition of typical prokaryotic algae (Cynobacteriota), fungi (Eumycota), eukaryotic algae, Bryophyta, Pteridophyta,
- Recognition of all the woody species of Slovenia
- Capability of recognition of families and selected genera.
- Determination of Pteridophyta and Spermatophyta with dichotomic keys

**Metode poučevanja in učenja:****Learning and teaching methods:**

<ul style="list-style-type: none"> <li>- Predavanja</li> <li>- Laboratorijske vaje</li> <li>- Terenske vaje</li> <li>- Individualno določanje po dihonomnem ključu</li> <li>- Izdelava herbarija min. 100 rastlinskih vrst</li> </ul>	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Laboratory excersises</li> <li>- Field excersises</li> <li>- Individual determination with dichotomic keys</li> <li>- Elaboration of herbarium with min. 100 plant species</li> </ul>
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**Načini ocenjevanja:**

Delež (v %) /

Weight (in %)

**Assessment:**

Način (pisni izpit, ustno izpraševanje, naloge, projekt)		Type (examination, oral, coursework, project):
- Pisni in ustni kolokvij	40	- Written and oral practical examinations
- Ocena izdelave praktičnega izdelka	10	- Evaluation of practical product
- Pisni izpit	50	- Written examination

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

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. *Ann. Ser. hist. nat.*, 2010, vol. 20, št. 2, str. 101-112.

ŠKORNIK, Sonja, VIDRIH, Matej, KALIGARIČ, Mitja. The effect of grazing pressure on species richness, composition and productivity in North Adriatic Karst pastures. *Plant Biosyst. (Firenze, Testa stamp.)*, 2010, vol. 144, no. 2, str. 355-364.

ŠKORNIK, Sonja, ŠAJNA, Nina, KRAMBERGER, Branko, KALIGARIČ, Simona, KALIGARIČ, Mitja. Last remnants of riparian wooded meadows along the middle Drava River (Slovenia) : species composition is a response to light conditions and management. *Folia geobot.*, dec. 2008, vol. 43, no. 4, str. 431-445.

MASON, Norman W. H., PIPENBAHER, Nataša, ŠKORNIK, Sonja, KALIGARIČ, Mitja. Does complementarity in leaf phenology and inclination promote co-existence in a species-rich meadow? : evidence from functional groups. *J. veg. sci.*, Article first published online: 1 AUG 2012, doi: [10.1111/j.1654-1103.2012.01451.x](https://doi.org/10.1111/j.1654-1103.2012.01451.x). [COBISS.SI-ID [19304968](https://www.cobiss.si/id/19304968)]

PIPENBAHER, Nataša, KALIGARIČ, Mitja, ŠKORNIK, Sonja. Functional comparison of the sub-Mediterranean illyrian meadows from two distinctive geological substrates = Confronto funzionale di praterie sub-mediterranee illiriche di due substrati geologici distinti = Funkcionalna primerjava submediteranskih ilirskih travnikov z dveh različnih geoloških podlag. *Ann. Ser. hist. nat.*, 2008, letn. 18, št. 2, str. 247-258.

PIPENBAHER, Nataša, KALIGARIČ, Mitja, ŠKORNIK, Sonja. Floristic and functional comparison of karst pastures and karst meadows from the North Adriatic Karst = Floristična in funkcionalna primerjava kraških pašnikov in kraških travnikov severnojadranskega Krasa. *Acta carsol.*, 2011, letn. 40, št. 3, str. 515-525.

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. *PlantBiosyst. (Firenze, Testa stamp.)*, 2011, vol. 145, no. 3, str. 688-698.