



Univerza v Mariboru



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Fakulteta za naravoslovje in
matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: Sistematika in filogenija višjih rastlin

Course title: Systematics and phylogeny of higher plants

Študijski program in stopnja	Študijska smer	Letnik	Semester
Study programme and level	Study field	Academic year	Semester
Univerzitetni program 1. stopnje Ekologija z naravovarstvom / EKNA		1	2
University programme 1st level Ecology with nature conservation/EKNA		1	2

Vrsta predmeta / Course type:

Obvezni / Obligatory

Univerzitetna koda predmeta / University course code:

Predavanja	Seminar	Sem. vaje	Lab. vaje	Teren. vaje	Samost. delo	ECTS
Lectures	Seminar	Tutorial	Laboratory work	Field work	Individ. work	
45			30	30	105	7

Nosilec predmeta / Lecturer:

Mitja KALIGARIČ

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

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

Jih ni.

Prerequisites:

No.

Vsebina:

Pod »višje rastline« razumemo semenke (Spermatophyta), razdeljene na skupine Coniferophytina, Cycadophytina (golosemenke) in Magnoliophytina (kritosemenke). Pri kritosemenkah ohranjamo tradicionalno delitev na dvokaličnice in enokaličnice. Pri golosemenkah je poudarek na filogeniji in evoluciji, predvsem primerjalno s praprotnicami. Sledi pregled taksonomskih skupin in njihove morfologije, reprodukcije in – na kratko – ekologije. Izpostavljeni so trendi razvoja kritosemenk. Pri kritosemenkah je na začetku poudarek na evolucijsko izvirnih znakih, nato pa sledi pregled sistema po redovih in družinah. Podan je filogenetski položaj redov, morfologija družin ter pregled pomembnejših rodov in vrst.

Content (Syllabus outline):

As »higher plants« seed plants (spermatophytes, Spermatophyta) are understood, which contain three groups: Coniferophytina, Cycadophytina (gymnosperms) and Magnoliophytina (angiosperms). Among angiosperms the traditional division to dicotyledons and monocotyledons is kept. Among gymnosperms phylogeny and evolution are emphasized, predominately in comparison with pteridophytes. Then follow a survey of their morphology, reproduction and briefly the ecology. The evolutionary trends of angiosperms are discussed. At the beginning of angiosperms, their evolutionary primitive characters are emphasized, than follows the survey of orders, families. The phylogenetic position of the orders is given, as well as the morphology of the families and most important genera and species.

Temeljni literatura in viri / Readings:

- Graf, J., 1975: Tafelwerk zur Pflanzensystematik. J. F. Lehmanns Verlag, München.
- Heywood, V., 1995: Cvetnice. Kritosemenke sveta. DZS, Ljubljana.
- Martinčič, A. (ed.), 2007: Mala flora Slovenije. Tehniška založba, Ljubljana.
- Raven, P. H., Evert, R. F., Eichhorn S. E., 1999: Biology of Plants. W. H. Freeman and company Worth Publishers.
- Sitte, P., Weiler, E. W., Kadereit, J. W., Bresinsky, A., Körner, C., 2002: Lehrbuch der Botanik. 35. Auflage. Spektrum Akademischer verlag Heidelberg, Berlin.

Cilji in kompetence:

- Podati pregled nad sistemom semenk.
- Razložiti evolucijo in filogenijo semenk.
- Pojasniti različne oblike razmnoževanja v povezavi z evolucijo in morfologijo.
- Utemeljiti sorodstvene odnose med rodovi, družinami in redovi.
- Primerno predstaviti najbolj značilne predstavnike.
- Primerno predstaviti floro Slovenije.
- Primerno predstaviti pogoste, gospodarsko uporabne, endemične ter na druge načine za človeka pomembne rastlinske vrste.

Objectives and competences:

- To give the overview on the taxonomic system of seed plants.
- To explain the evolution of seed plants.
- To explain different reproduction cycles, based on evolution and morphology.
- To ground the relationships between the genera, families and orders.
- To present the most representative species.
- To present the flora of Slovenia.
- To present the most common, economically useful, endemic, or otherwise for man important plant species.

Predvideni študijski rezultati:

Znanje in razumevanje:

- Evolucija in filogenija semenk.
- Sistematska delitev semenk.
- Osnovna morfologija in razmnoževanje semenk.
- Vedenje o najpogostejših, endemičnih in uporabnih rastlinah.

Prenesljive/ključne spretnosti in drugi atributi:

- Prepoznavanje vseh lesnih vrst Slovenije.
- Določanje po dihonomnem ključu.
- Sposobnost prepoznavanja višjih taksonov.
- Sposobnost prepoznavanja družin in nekaterih rodov.

Intended learning outcomes:

Knowledge and understanding:

- Evolution and phylogeny of seed plants.
- Taxonomic system of seed plants.
- Basic morphology and reproduction cycles of seed plants.
- Knowledge about most common, endemic and useful plant species.

Transferable/Key Skills and other attributes:

- Recognition of all the woody species of Slovenia.
- Determination with dichotomic keys.
- Capability of recognition of higher taxa.
- Capability of recognition of families and selected genera.

Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje
- Terenske vaje
- Individualno določanje po dihonomnem ključu
- Izdelava herbarija min. 100 rastlinskih vrst

Learning and teaching methods:

- Lectures
- Laboratory excersises
- Field excersises
- Individual determination with dichotomic keys
- Preparation of herbarium with min. 100 plant species

Delež (v %) /

Načini ocenjevanja:

Weight (in %)

Assessment:

<ul style="list-style-type: none"> • Praktično preverjanje prepoznavanja lesnih vrst 	10	<ul style="list-style-type: none"> • Practical examination of the recognition of woody species.
<ul style="list-style-type: none"> • Praktično in ustno preverjanje iz določevanja 	30	<ul style="list-style-type: none"> • Practical and oral examination of determination
<ul style="list-style-type: none"> • Izdelava herbarija 	10	<ul style="list-style-type: none"> • Herbarium preparation
<ul style="list-style-type: none"> • Pisni kolokvij iz terenskega dela 	10	<ul style="list-style-type: none"> • Written examination of field work
<ul style="list-style-type: none"> • Pisni izpit 	40	<ul style="list-style-type: none"> • Written examination

Reference nosilca / Lecturer's references:

- KALIGARIČ, Mitja, BOHANEK, Borut, SIMONOVIK, Biljana, ŠAJNA, Nina. Genetic and morphologic variability of annual glassworts (*Salicornia* L.) from the Gulf of Trieste (Northern Adriatic). *Aquat. bot.* [Print ed.], 2008, vol. 89, iss. 3, str. 275-282. <http://dx.doi.org/10.1016/j.aquabot.2008.02.003>, doi: 10.1016/j.aquabot.2008.02.003. [COBISS.SI-ID 15855880]
- KALIGARIČ, Mitja, SEDONJA, Jožef, ŠAJNA, Nina. Traditional agricultural landscape in Goričko Landscape Park (Slovenia) : distribution and variety of riparian stream corridors and patches. *Landsc. urban plan.* [Print ed.], 21 March 2008, vol. 85, iss. 1, str. 71-78, ilustr. <http://dx.doi.org/10.1016/j.landurbplan.2007.09.012>. [COBISS.SI-ID 15674376]
- KALIGARIČ, Mitja, TOGNETTI, Roberto, JANŽEKOVIČ, Franc, RASCHI, Antonio. Leaf fluctuating asymmetry of *Myrtus communis* L., affected by increases in atmospheric CO₂ spring. *Pol. J. Environ. Stud.*, 2008, vol. 17, no. 4, str. 503-508. [COBISS.SI-ID 16045320]

- 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, Testo stamp.), 2010, vol. 144, no. 2, str. 355-364, ilustr. <http://www.informaworld.com/smpp/section?content=a925190644&fulltext=713240928>. [COBISS.SI-ID 17586696]