Univerza v Mariboru

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Fakulteta za naravoslovje in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Ekologija tal**
Course title:	Soil Ecology

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Biologija in ekologija z naravovarstvom, 2. stopnja	/	1/2	Poletni/ Zimski
Biology and Ecology with Nature Conservation, 2nd Level	/	1/2	Summer/ Winter

Vrsta predmeta / Course type izbirni / elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15	5		15	10	135	6

Nosilec predmeta / Lecturer: Tone NOVAK

Jeziki / Languages:	**Predavanja / Lectures:**	Tone NOVAK
	Vaje / Tutorial:	Jan PODLESNK

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Poznavanje biodiverzitete Slovenije	Knowledge of biodiversity of Slovenia.

Vsebina:

Tla so plast kopenskih ekosistemov z najintenzivnejšimi procesi razkrajanja odmrlih organskih snovi v teh ekosistemih. Predstavljeni so osnovni klimatoconalni tipi tal. Specializirana živa bitja tal zasedajo številne ekološke niše, v procesih pretvorbe snovi vseskozi sodelujejo zlasti bakteri in glive. Talne živali intenzivno sodelujejo pri razkosovanju večjih kosov, skeletiranju listov ter mešanju in rahljanju tal. Razložen je proces humifikacije in vloga posameznih sestavin tal za njihove lastnosti. Tla so obravnavana ekološko, izpostavljena je živa komponenta tal. Podan je pregled osnovnih tipov tal in glavnih skupin organizmov v njih. Predstavljene so zna edafobiontov, vključno z njihovimi posebnimi prilagoditvami na življenje v tleh ter njihovimi ekološkimi nišami.

Content (Syllabus outline):

Soils are a stratum of terrestrial ecosystems characterized for their most nitensive decomposition processes within these ecosystems. The esential climatoconal soils are presented. Specialized soil organisms posess several ecological niches, while the bacteria and fungi are throughout intenseively engaged in the soil processes. Edaphic animals are engaged in cutting up bigger particles, sceletizing leaves, mixing soil particles and making them loose. The humification process is discussed, as well as the role of each soil compartment contributing to the unique properties of soils. Soils are discussed in the ecological point of view, stressing their biota. A review of the basic soil types and the representative organisms within them are given. The characteristics of the edaphobionts, their special adaptations to the life within soils, and their ecological niches are presented.

Temeljni literatura in viri / Readings:

- Coleman, D. C., Crossley, D. A. Jr., P. F. Hendrix , 2004: Fundamentals of soil ecology. Alesvier Acad. Press.
- Mršic, N., 1997: Živali naših tal. Tehniška založba Slovenije.
- Stritar, A., 1990. Krajina, krajinski sistemi. Raba in varstvo tal v Sloveniji. Partizanska knjiga, Ljubljana: 1990.
- Vovk Korže, A., F. Lovrencak, 2004: Priro
- Filozofska fakulteta Univerze v Ljubljani, Oddelek za geografijo.
- Vrščaj, B., T. Prus, F. Lobnik, 2005. Soil information and soil data use in Slovenia. V: Jones, R. J. A., B. Houšková, P. Bullock, L. Montanarella (ur.). Soil resources of Europe, (European Soil Bureau Research Report, No. 9, EUR 20559 EN). 2nd ed. Luxembourg: Office for Offical Publications of the European Communities.
- Wall, D. H., 2004: Sustaining biodiversity and ecosystem services in soils and sediments. Island Press, Washington.
- Izbrani clanki iz revij/Selected papers from the journals Pedobiologia, European Journal of Soil Biology
- itd./etc.

Cilji in kompetence:

- Študenti se seznanijo s tlemi kot kompleksnim sistemom
- Spoznajo osnovne pedogenetske procese
- Spoznajo vlogo talnih organizmov v teh procesih

Objectives and competences:

Students learn about soils as complex systems.

- Students get insights of basic pedogenetic processes.
- Students get knowledhge about the role of edaphic organisms in those processes.

Predvideni študijski rezultati:

Znanje in razumevanje:

Znanje in razumevanje:

- Študenti dobijo pregled nad tipi tal v
- svetu in v Sloveniji
- Razumejo osnovne pedogenetske procese
- Prepoznajo življenjski tip edafobionta

Prenesljive/kljucne spretnosti in drugi atributi:

- Študent ise usposobijo za opravljanje

Intended learning outcomes:

Knowledge and understanding:

Knowledge and Understanding:

- Students provide an overwiew of soil
- types in the World and in Slovenia.They understands the basic pedogenetic processes.
- They recognizes the living form of edaphobionts.

osnovnih pedoloških analiz • Znajo oceniti ekološko stanje v dolocenem talnem habitatu in predvideti rešitve morebitnih aktualnih problemov	Transferable/Key Skills and other attributes: • Student capture the knowledge for • carrying out the basic pedological • analyses. • They can estimate the ecological conditions • within a selected soil habitat, and to make • decisions about the appropriate way of solving of eventual actual problems.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja • Seminar • Laboratorijske vaje • Terenske vaje • Samostojno delo	• Lectures • Seminar • Laboratory excercise • Field work • Individual work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt) • Praktični kolokvij iz reševanja izbranega ekološkega problema tal • Pisni izpit	50 50	Type (examination, oral, coursework, project): • Practical partial exam of searching a solution of a selected ecological soil problem • Written exam

Reference nosilca / Lecturer's references:

Devetak, D., Novak, T., Janžekovič, F., 2012. Effects of substrate density on behaviour of antlion larvae (Neuroptera: Myrmeleontidae). Acta Oecologica 43, 1−7. doi:10.1016/j.actao.2012.05.010 http://www.sciencedirect.com/science/article/pii/S1146609X12000628

Novak, T., Perc, M., Lipovšek, S., Janžekovič, F., 2012. Duality of terrestrial subterranean fauna. International Journal of Speleology 41(2), 181−188. http://dx.doi.org/10.5038/1827-806X.41.2.5

Šajna, N., Kušar, P., Slana Novak, L., Novak, T., 2011. Benefits of low-intensive grazing: co-occurrence of umbelliferous plant (*Hladnikia pastinacifolia* Rchb.) and opilionid species (*Phalanguium opilio* L.) in dry, calcareous grassland. Polish Journal of Ecology 59(4), 777−786. http://www.pol.j.ecol.cbe-pan.pl/article/ar59_4_12.pdf