



OPIS PREDMETA / SUBJECT SPECIFICATION

Predmet:	Ekologija krasa
Subject Title:	Karst Ecology

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Biologija in ekologija z naravovarstvom / Biology and ecology with nature conservation	Biologija; Ekologija z naravovarstvom / Biology; Ecology with nature conservation	1	1

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Lab. work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
30	15		15	15	135	7

Nosilec predmeta / Lecturer:

Jeziki / Predavanja / Lecture:
Languages: Vaje / Tutorial:

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

Vsebina:

Kras prekriva 10 do 15 odstotkov Zemeljine površine. Poznani in opisani so različni tipi kraških ekosistemov (npr. presihajoča jezera) ter podzemeljskih habitatov, npr. ponikalnice, globinske vode v freatični coni kraškega vodonosnega sistema ter ekotoni habitati (epikras, hipotelminornejik). Sluhatelji se bodo seznanili z osnovami ekologije krasa, biologijo kraških površinskih in podzemeljskih habitatov ter z biodiverzitetijo teh habitatov. Spoznali bodo biotske procese, značilne za kraške ekosisteme, vključno s procesi evolucije in adaptacije, kolonizacije in speciacije, vir energije v podzemeljskih habitatih, ekologijo združb, biogeografijo ter naravovarstvo.

Prerequisites:

Contents (Syllabus outline):

Karst terrain covers about 10 to 15 percent of the terrestrial Earth surface. Many different types of karst ecosystems and subterranean habitats have been described and sampled. Prominent among these are intermittent lakes, underflow streams, deep aquifers, and ecotones (epikarst, hypotelminorheic habitats). Students will be introduced into karst ecology, biology of karst epigeal and subterranean habitats and their biodiversities. A range of biotic processes, including evolution and adaptation, colonization and speciation, ecosystem function, sources of energy in subterranean habitats, community ecology, biogeography, and nature conservation will be discussed.

Temeljni študijski viri / Textbooks:

- Chapman, P., 1993: Caves and cave life. Harper Collins, London.
- Culver, D. C., T. C. Kane, D. W. Fong, 1995: Adaptation and Natural Selection in Caves. The Evolution of *Gammarus minus*. Harvard Univ. Press, Cambridge, MA.
- Culver, D. C., W. B. White (eds.), 2005: Encyclopedia of Caves. Elsevier/Academic Press, Burlington, MA.
- Culver, D. C., L. Deharveng, A. Bedos, J. J. Lewis, M. Madden, J.R. Reddell, B. Sket, P. Trontelj, D. White, 2005: The mid-latitude biodiversity ridge in terrestrial cave fauna. *Ecography* 29:120-128.

- Gibert, J., D. L. Danielopol, J. Stanford (eds.), 1994: Groundwater Ecology. Academic Press, San Diego.
- Gibert, J., J. Mathieu, F. Fournier (eds.), 1997: Groundwater/Surface Water Ecotones: Biological and Hydrological Interactions and Management Options. Cambridge University Press, Cambridge.
- Griffiths, H. I., B. Kryštufek, J. M. Reed (eds.) 2004: Balkan Biodiversity. Pattern and Process in the European Hotspot. Kluwer, Dordrecht, The Netherlands.
- Gunn, J. (ed.), 2004: Encyclopedia of Caves and Karst Science. Fitzroy-Dearborn, New York.
- Jeffery, W. R., 2006: Evolution of eye degeneration in cavefish: the return of pleiotropy. Subterranean Biology 3:1-12.
- Pipan, T., 2005: Epikarst – A Promising Habitat. ZRC Publishing, Karst Research Institute at ZRC-SAZU, Ljubljana, Slovenia.
- Wilkens, H., D. C. Culver, W. F. Humphreys (eds.), 2000: Subterranean Ecosystems. Elsevier, Amsterdam.

Cilji:

- Predstaviti značilnosti kraških ekosistemov ter podzemeljskih habitatov
- Pojasniti vir energije v podzemeljskih habitatih
- Predstaviti biodiverzitetu v izbranih kraških habitatih
- Pojasniti biotske interakcije in strukturo združb
- Predstaviti prilagoditve za življenje v podzemlju
- Pojasniti naseljevanje in nastajanje novih vrst v podzemlju
- Podati geografijo podzemeljske favne
- Predstaviti varovanje in zaščito kraškega okolja

Objectives:

- To present special characteristics of karst ecosystems and subterranean habitats
- To explain sources of energy in subterranean environments
- To present biodiversity of selected karst habitats
- To explain biotic interactions and community structure
- To present adaptations to subterranean habitats
- To explain colonization and speciation in subterranean environments
- To give geography of cave biodiversity
- To present conservation and protection of karst environments

Predvideni študijski rezultati:

Znanje in razumevanje:

- Ekologija kraških ekosistemov in podzemeljskih habitatov ter njihova biodiverzitetu
- Biotski procesi v kraških ekosistemih
- Ekologija združb in biogeografija
- Trajnostni razvoj

Prenesljive/ključne spretnosti in drugi atributi:

- Usposobljenost za analitično vrednotenje in interpretiranje kraških ekosistemov
- Razumevanje energijskih, strukturnih in funkcionalnih povezanosti med komponentami kraških ekosistemov ter posledice antropogenega vpliva

Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje
- Terenske vaje
- Individulano načrtovanje izbrane raziskave

Načini ocenjevanja:

- Individualni projekt
- Ustni ali pisni izpit

Intended learning outcomes:

Knowledge and Understanding:

- Ecology of karst ecosystems and subterranean habitats and biodiversity
- Karst ecosystem function
- Community ecology and biogeography
- Sustainable development

Transferable/Key Skills and other attributes:

- Capability of analytical assessment and interpretation of karst ecosystems
- Understanding of energetic, structural and functional relations between ecosystem components and anthropogenic impact

Learning and teaching methods:

- Lectures
- Laboratory excersises
- Field excersises
- Individual planning of a selected investigation

Assessment:

- Individual project
- Oral or written exam

Delež (v %) /
Weight (in %)

	50	
	50	

Materialni pogoji za izvedbo predmeta :

- *Multimedijska predavalnica*
- *Laboratorij z mikroskopi, binokularnimi lupami in kemijskim instrumentarijem*
- *Ekskurzije na terenu*

Obveznosti študentov:

(pisni, ustni izpit, naloge, projekti)

- Individualni projekt
- Ustni ali pisni izpit

Material conditions for subject realization

- *Lecture hall for multimedia presentations*
- *Laboratory with microscopes, binocular lenses and chemical instruments*
- *Field excursions*

Students' commitments:

(written, oral examination, coursework, projects):

- Individual project
- Oral or written exam