



**OPIS PREDMETA / SUBJECT SPECIFICATION**

<b>Predmet:</b>	<b>Izbrana poglavja iz ekologije podzemeljskih habitatov</b>
<b>Subject Title:</b>	<b>Selected Topics in Ecology of Hypogean Habitats</b>

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Doktorski študij Ekološke znanosti / Doctoral Study Ecological Sciences		Izbirni 1 ali 2 ali 3	2 ali 3 ali 4 ali 5

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
5				5	140	5

Nosilec predmeta / Lecturer:

<b>Jeziki /</b>	<b>Predavanja / Lecture:</b>	slovenski / Slovenian
<b>Languages:</b>	<b>Vaje / Tutorial:</b>	slovenski / Slovenian

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

Poznavanje organizmov in ekologije na ravni univerzitetnega programa

**Prerequisites:**

Knowledge of organisms and ecology at graduate level

**Vsebina:**

Obravnavana so izbrana poglavja iz naslednjih sklopov.

Podzemeljski habitati so naravne in umetne votline. S slovenskega ozemlja sta opisana prvi podzemeljski vretenčar, človeška ribica, ter prvi nevretenčar, hrošč drobnovratnik. Predavanja se začnejo s kratkim orisom zgodovine speleobiologije, ki so jo zasnovali raziskovalci na slovenskem ozemlju. Sledita pregled splošnih fizičnih razmer v podzemeljskih habitatih ter pregled splošnih značilnosti podzemeljskih živih bitij. Poudarek je na ekoloških razmerah v posameznih podzemeljskih tipih habitatov (naravne in umetne votline, epikras) ter na obravnavi troglobiontov in freatobiontov. Na terenu in v laboratoriju so prikazani vzori za ekološke raziskave podzemeljskih habitatov.

**Contents (Syllabus outline):**

Selected topics in the following chapters are discussed.

Hypogean habitats are natural and artificial cavities. In the Slovenian territory, the first vertebrate: the proteus, as well as the first invertebrate: the brittle leprodirus, have been described. The lectures begin with a concise historical review of the speleobiology, which had started in the territory of Slovenia. The overview of general physical characteristics of the hypogean habitats, and the characteristics of the hypogean fauna follow. The discussions on the ecological circumstances in different hypogean habitat types (natural and artificial cavities, epikras), and the troglobites and freatobites are in focus. In field and in the laboratory, some examples of ecological investigations in hypogean habitats are presented.

**Temeljni študijski viri / Textbooks:**

- Bole, J., B. Drovenik, N. Mršič, B. Sket, 1993: Endemic animals in hypogean habitats in Slovenia. Naše jame, Ljubljana, 35(1): 43-55.
- Culver D. C., Christman M. C., Sket B., Trontelj P., 2004. Sampling adequacy in an extreme environment: species richness patterns in Slovenian caves. Biodiversity and Conservation, 13: 1209-1229.
- Culver, D. C., W. B. White (eds.), 2005: Encyclopedia of caves. Elsevier/Academic Press, Amsterdam/Boston.
- Gunn, J., 2004: Encyclopedia of caves and karst science. Taylor & Francis Books Inc., New York/London.
- Juberthie, C. & V. Decu (eds.), 1992-1996: Encyclopaedia biospeologica I-III. Societé de biospéologie, Moulis, Bukarest.
- Novak, T., 2005: Terrestrial fauna from cavities in Northern and Central Slovenia, and a review of

systematically ecologically investigated cavities. Acta carsologica, 34(1): 169-210.

- Pipan, T., 2005: Epikarst – a promising habitat. Carsologica, Založba ZRC, Ljubljana.
- Sket B., Paragamian K., Trontelj P., 2004. A census of the obligate subterranean fauna of the Balkan peninsula. In: Griffiths H. I., B. Kryštufek (eds.): Balkan Biodiversity. Pattern and Process in Europe's Biodiversity Hotspot. Kluwer Academic Publishers: 309-322.
- Vandel, A., 1964: Biospéologie. Guthier - Villars, Paris.

#### Cilji:

- Podati podroben pregled tipov in značilnosti podzemeljskih habitatov
- Podati podroben pregled tipov in značilnosti podzemeljskih organizmov
- Podrobno predstaviti zgodovino speleobiologije in modernih trendov v njej
- Podrobno pojasniti osnovne ekološke razmere v podzemeljskih habitatih
- Podrobno prikazati izbrane metode ekološkega vzorčevanja v jamah

#### Predvideni študijski rezultati:

##### Znanje in razumevanje:

- Poglobljeno razumevanje ekoloških značilnosti podzemeljskih habitatov
- Poglobljeno razumevanje biotskih značilnosti podzemeljskih organizmov
- Podrobna zgodovina speleobiologije in trendi modernih znanstvenih raziskav
- Poglobljeno poznavanje vzorčevalnih metod v podzemeljskih habitatih

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

- Podrobno razpoznavanje troglomorfnih znakov
- Usposobljenost za zahtevno ekološko raziskovalno delo v podzemeljskih votlinah

#### Metode poučevanja in učenja:

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

#### Načini ocenjevanja:

- Individualni raziskovalni projekt – pisni in ustna predstavitev
- Pisni ali ustni izpit

Delež (v %) /  
Weight (in %)

50 %  
50 %

#### Objectives:

- To give an advanced overview of typology and characteristics of hypogean habitats
- To give an advanced overview of typology and characteristics of hypogean organisms
- To present advanced knowledge about the history and modern trends in speleobiology
- To explain in detail ecological circumstances in hypogean habitats
- To present in detail selected ecological sampling methods in caves

#### Intended learning outcomes:

##### Knowledge and Understanding:

- Advanced understanding of ecological characteristics of hypogean habitats
- Advanced understanding of biotic characteristics of hypogean organisms
- Advanced history of speleobiology and modern trends of scientific investigations
- Advanced knowledge about the elementary sampling methods in hypogean habitats

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

- Advanced recognition of troglomorphoses
- Capability of top-level ecological investigations in cavities

#### Learning and teaching methods:

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

#### Assessment:

- Individual project work – written, and oral presentation
- Written or oral exam

#### Materialni pogoji za izvedbo predmeta :

- *Multimedijska predavalnica*
- *Laboratorij z mikroskopi, binokularnimi lupami in kemijskim instrumentarijem*
- *Ekскурzije na teren*

#### Obveznosti študentov:

*(pisni, ustni izpit, naloge, projekti)*

#### 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):*

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|---|---|
| <ul style="list-style-type: none"><li>• Individualni raziskovalni projekt – pisni in ustna predstavitev</li><li>• Pisni ali ustni izpit</li></ul> | <ul style="list-style-type: none"><li>• Individual project work – written, and oral presentation</li><li>• Written or oral exam</li></ul> |
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