Podiplomskašola ZRCSAZU
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UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Izbrana poglavja iz paleontologije
Course title:	Selected Topics in Palaeontology

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Okoljske in regionalne študije, doktorski študij 3. stopnje	Paleobiologija in sedimentarna geologija	brez letnika	/
Environmental and Regional Studies, doctoral study, 3rd level	Palaeobiology and Sedimentary geology	not specified	/

Vrsta predmeta / Course type	Izbirni/Elective
Univerzitetna koda predmeta / University course code:	DIP03

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
20	10	30			120	6

Nosilca predmeta / Lecturers:	Špela Goričan, Adrijan Košir
Jeziki / Languages: Predavanja / Lectures:	Slovenščina, angleščina/Slovenian, English
Vaje / Tutorial:	Slovenščina, angleščina/Slovenian, English

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

Končana druga bolonjska stopnja ali univerzitetni študij VII stopnje.

Prerequisits:

Second-cycle Bologna degree or a university (level VII) degree.

Vsebina:

- Paleontologija, paleobiologija in geobiologija
- Prokarionti, protisti, nevretenčarji in vretenčarji (izbrane skupine)
- Paleobotanika in paleomikologija
- Ihnologija
- Morfologija in sistematika
- Biologija (prehranjevanje, razmnoževanje, ekologija, provincializem)
- Procesi biomineralizacije in rast skeleta
- Ohranjenost v fosilnem zapisu
- Biostratigrafija
- Paleoekologija in paleobiogeografija

Content (Syllabus outline):

- Palaeontology, paleobiology and geobiology
- Procaryotes, protists, plants, invertebrates and vertebrates (selected groups)
- Palaeobotany and palaeomycology
- Ichnology
- Morphology and systematics
- Biology (nutrition, reproduction, ecology, provincialism)
- Biomineralization processes and skeletal growth
- Preservation potential in the fossil record
- Biostratigraphy
- Palaeoecology and palaeobiogeography
- Evolution (phylogenetic lineages and diversity dynamics)

• Evolucija (filogenetske linije in diverzitetna dinamika)	

Temeljni literatura in viri / Readings:

- Sepkoski D (2012) Reading the Fossil Record. The growth of Paleobiology as an Evolutionary Discipline. 432pp, The University of Chicago Press
- Benton MJ, Harper DAT (2013) Introduction to Paleobiology and the Fossil Record. 592pp, Wiley-Blackwell
- Briggs D, Crowther PR, eds. (1990) *Palaeobiology: A Synthesis*. 608pp, Blackwell
- Briggs D, & Crowther PR (Eds.) 2001. *Palaeobiology II.* 600pp, Blackwell
- Foote M, Miller A (2007) *Principles of Paleontology* (3rd edition), 1-354, Freeman
- Lipps JH (1993) *Fossil Prokaryotes and Protists*, 342pp, Blackwell Scientific Publications
- Clarkson ENK (1998) *Invertebrate Palaeontology and Evolution* (4th edition), 470pp, Blackwell
- Benton MJ (2024) *Vertebrate Palaeontology* (5th edition). 688pp, Wiley-Blackwell
- Taylor TN, Krings M, Taylor EL (2015) *Fossil Fungi*. 384pp, Academic Press
- Taylor TN, Taylor EL, Krings M (2009) *Paleobotany. The Biology and Evolution of Fossil Plants* (2nd edition), 1230pp, Academic Press
- Buatois L, Mangano MG (2011) Ichnology. Organisms-Substrate Interactions in Space and Time. 358pp, Cambridge University Press

Izbrani članki in katalogi za posamezne skupine fosilov/Selected papers and catalogues for the individual groups of fossils.

Cilji in kompetence:

Cilji

Namen predmeta je poglobiti znanje o paleontologiji s poudarkom na izbranih skupinah fosilov. Vsaka skupina bo obravnavana z različnih vidikov, ki bodo pokrivali biologijo živečih taksonov ter stratigrafsko in geografsko razširjenost v fosilnem zapisu. Posebna pozornost bo namenjena tesni povezavi med (paleo)biologijo organizmov in fizičnim okoljem, v katerem so živeli. Poudarek predmeta bo na individualnem raziskovalnem delu študentov. Obravnavane fosilne skupine bodo izbrane za vsakega študenta posebej in prilagojene njegovim raziskovalnim željam in potrebam.

Kompetence

Študent oz. študentka obvlada temeljno specializirano literaturo in doseže trden nivo poznavanja izbranih skupin fosilov ter metodološke specifike preiskav.

Objectives and competences:

Objectives

The purpose of the course is to deepen the knowledge of palaeontology, with an emphasis on selected groups of fossils. Each group will be treated from different aspects covering biology of living taxa as well as spatial and temporal distribution in the fossil record. A close relationship between (palaeo)biology of these organisms and their physical environment will be emphasized. This course will be largely based on a supervised research project carried out by each student. The selection of the considered fossil group(s) will be adapted according to student's research interests.

Competences

The student gets up to date with basic publications and develops a firm expertise in selected fossil group(s), including specific research methodologies.

Predvideni študijski rezultati:

Znanje in razumevanje

- Študentka oz. študent zna določiti fosile v preiskovanem materialu in pozna njihov

Intended learning outcomes:

Knowledge and understanding

- The student is able to identify the studied fossils and knows their significance as

pomen za določanje starosti in interpretacijo okolja. • Zna analizirati njihovo diverziteto v prostoru in času ter vzorce porazdelitve interpretirati v odvisnosti od sprememb okolja. • Pozna glavne kriterije za klasi-fikacijo vrst, rodov in višjih taksonomskih kategorij. • Empirično zna rekonstruirati filogenetske linije.	stratigraphic and/or environmental indicators. • They can analyse and interpret their spatio-temporal diversity patterns in correlation with environmental changes. • They know the main criteria of classification at species, genus and suprageneric level. He can empirically reconstruct phyletic lineages.

Metode poučevanja in učenja:	Learning and teaching methods:
☒Predavanja	☒Lectures
☒Laboratorijske vaje	☒Lab work/tutorials
☒Terensko delo	☒ Field work
☒Seminar	☒Seminar
☒Individualne naloge	☒Independent work assignments
☒Konzultacije	☒Consultations
☒e-izobraževanje	☒e-Learning

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Daljši pisni izdelki	30	Long written assignments
Javni nastop ali predstavitev	20	Presentations
Končno ocenjevanje (pisni/ustni izpit)	50	Final examination (written/oral)

Reference nosilcev in soizvajalcev / Lecturers' references:

- Cifer T, Goričan Š, Demény A, Gawlick H-J (2024) Radiolarian response to environmental changes at the Sinemurian–Pliensbachian transition in the Northern Calcareous Alps, Austria. *Papers in Palaeontology*. 10: e1581
- Cifer T, Goričan Š, Auer M, Demény A, Fraguas Á, Gawlick H-J, Riechelmann S (2022) Integrated stratigraphy (radiolarians, calcareous nannofossils, carbon and strontium isotopes) of the Sinemurian–Pliensbachian transition at Mt. Rettenstein, Northern Calcareous Alps, Austria. *Global and planetary change* 212: 103811
- Goričan Š, Carter ES, Guex J, O'Dogherty L, De Wever P, Dumitrica P, Hori RS, Matsuoka A, Whalen P (2013) Evolutionary patterns and paleobiogeography of Pliensbachian and Toarcian (Early Jurassic) Radiolaria. *Palaeogeography, Palaeoclimatology, Palaeoecology* 386: 620-636
- Weiss AM, Foster WJ, Košir A, Muscente AD, Martindale RC (2025) Shallow-marine, benthic ecosystems show compositional shifts in response to the Paleocene-Eocene Thermal Maximum (PETM) on the Adriatic Carbonate Platform. *Paleoceanography and Paleoclimatology* 40: e2024PA005039
- Zamagni J, Košir A, Mutti M (2009) The first microbialite-coral mounds in the Cenozoic (uppermost Paleocene) from the Northern Tethys (Slovenia): Environmentally-triggered phase shifts preceding the PETM? *Palaeogeography Palaeoclimatology Palaeoecology* 274:1-17
- Košir A (2004) Microcodium revisited: Root calcification products of terrestrial plants on carbonate-rich substrates. *Journal of Sedimentary Research* 74:845-857.