

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	GEOKEMIJA SEDIMENTNIH KAMNIN
Course title:	GEOCHEMISTRY OF SEDIMENTARY ROCKS

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Vede o Zemlji in okolju, magistrski študij 2. stopnje	Paleobiologija in sedimentarna geologija		
Earth and environmental sciences, Master study 2nd level	Palaeobiology and Sedimentary geology		

Vrsta predmeta / Course type

Izbirni/Elective

Univerzitetna koda predmeta / University course code:

MIP04

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
40	30				80	6

Nosilec predmeta / Lecturer:

Špela Goričan

Sodelavci predmeta / coworkers:

Alenka Eva Črne, tehn. sod. Filip Litera

Jeziki /

Languages:

Predavanja/ Lectures:

Vaje / Tutorial:

Slovenščina, angleščina/Slovene, English

Slovenščina, angleščina/Slovene, English

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

Končan študijski program 1. stopnje ali dodiplomski študijski program za pridobitev univerzitetne izobrazbe, sprejet pred 11. 6. 2004 s področja naravoslovja.

Prerequisites:

First-cycle Bologna degree or a university degree in the natural sciences.

Vsebina:

- Biogeokemijski cikli; sedimenti – diagenaza – sedimentne kamnine.
- Seminarska naloga na izbrano temo:
- izvor sedimentnih kamnin;
 - elementna, mineraloška in izotopska sestava in analiza provenience sedimentov
 - kemična sestava in mineralogija morskih sedimentov;
 - terestrični kemični sedimenti;

Content (Syllabus outline):

- Geological cycle; Sediments – diagenesis – sedimentary rocks.
- Selected seminar topics:
- Origin of sedimentary rocks;
 - Provenance analysis based on elemental, mineralogical, and isotopic composition of siliciclastic rocks;
 - Chemical composition and mineralogy of marine sediments;
 - Terrestrial chemical sediments

<ul style="list-style-type: none"> ● geokemija stabilnih izotopov in sedimentarnega zapisa; ● geokemija z organsko snovjo bogatih kamnin in njihov potencial za generiranje nafte in plina; ● geokemija karbonatov, silicijskih sedimentov, Fe, Mn in P sedimentov; ● evaporiti: paleoklima in evolucija kemije morske vode; ● diageneza in metasomatizem: vpliv na geokemični zapis; ● geokemični zapis globalnih dogodkov in velikih izumiranj. 	<ul style="list-style-type: none"> ● Stable isotope geochemistry and sedimentary record; ● Geochemistry of organic-rich rocks and their potential for petroleum generation ● Geochemistry of carbonates, siliceous rocks, Fe, Mn and P sediments; ● Evaporites: paleoclimate and evolution of ocean chemistry ; ● Diagenesis and metasomatism: impact on geochemical signatures; ● Geochemical record of global events and mass extinctions.
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Temeljni literatura in viri / Readings:

- Izbrana poglavja /Selected chapters:
- James R. 2005. Marine biogeochemical cycles, Elsevier, 2nd edition, 130 pp.
- Holland H. & Turekian K. (Eds.) 2014. Treatise on Geochemistry, izbrana poglavja iz
- Vol. 9: Sediments, Diagenesis and Sedimentary Rocks, in
- Vol. 7: Surface and Grounwater, Weathering and Soils.

Cilji in kompetence:

Predmet posega na širša področja vseh drugih predmetov, njegov namen je poglobiti znanje izbranih tematik iz geokemije sedimentov in sedimentnih kamnin. Predmet je sestavljen iz dveh delov; uvodnemu sklopu predavanj sledijo seminarske predstavitve. Študent izbere, napiše in predstavi seminarsko nalogo z ene od predpisanih tem, ki se praviloma dotika teme njegove magistrske naloge.

Objectives and competences:

The course topic is broadly related to all other subject of the module. It is aimed at deepening the understanding of selected problems of geochemistry of sediments and sedimentary rocks. Following an introductory series of lectures, a student selects a seminar topic from a list (above), writes and presents a paper, typically from an area related to the theme of his/her master thesis.

Predvideni študijski rezultati:

Znanje in razumevanje:
Študent pokaže artikulirano razumevanje biogeokemičnih ciklov in osnov geokemije sedimentnih kamnin. Na podlagi objavljenih del pridobi poglobljeno znanje o izbranem področju geokemije, ki se tiče njegove/njene magistrske naloge ali druge sorodne teme.

Intended learning outcomes:

Knowledge and understanding:
Student shows articulated knowledge of biogeochemical cycles and fundamentals of geochemistry of sedimentary rocks. He/she acquires an advanced understanding from published work in the chosen area of geochemistry related to the topic of his/her master thesis or other related subjects.

Metode poučevanja in učenja:

- Predavanja
- Seminar

Learning and teaching methods:

- Lectures
- Seminar

Delež (v %) /

Weight (in %) **Assessment:**

Načini ocenjevanja:

Način (pisni izpit, ustno izpraševanje, naloge, projekt) - Seminarska naloga in zagovor	100	Type (examination, oral, coursework, project): - Written seminar paper and defence
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Reference nosilca / Lecturer's references:

<ol style="list-style-type: none"> 1. O'Dogherty, L., Goričan, Š., Gawlick, H.-J. 2017: Middle and Late Jurassic radiolarians from the Neotethys suture in the Eastern Alps. <i>Journal of Paleontology</i>, 91/1, 25-72. 2. O'Dogherty, L., Aguado Merlo, R., Baumgartner, P. O., Bill, M., Goričan, Š., Sandoval, J., Sequeiros, L. 2018: Carbon-isotope stratigraphy and pelagic biofacies of the Middle-Upper Jurassic transition in the Tethys-Central Atlantic connection. <i>Palaeogeography, Palaeoclimatology, Palaeoecology</i>. 507, 129-144. 3. Slovenec, D., Šegvić, B., Halamić, J., Goričan, Š., Zanoni, G. 2020: An ensialic volcanic arc along the northwestern edge of Palaeotethys : insights from the Mid-Triassic volcano-sedimentary succession of Ivanščica Mt. (northwestern Croatia). <i>Geological Journal</i>, 55/6, 4324-4351. DOI: 10.1002/gj.3664. 4. Črne, A.E., Brandsegg, K.B., Brekke, T. 2014. Play analysis and Common risk segment models of the Norwegian Barents Sea. Exploro proprietary multi-client project 2014/145, 92 pp. (confidential). 5. Črne, A.E., Melezhik, V.A., Lepland, A., Fallick, A.E., Prave, A.R. & Brasier, A.T. 2014. Petrography and geochemistry of carbonate rocks of the Zaonega Formation, Russia: documentation of ¹³C-depleted non-primary calcite. <i>Precambrian Research</i>, 240, 79-93. 6. Lepland, A., Joosu, L., Kirsimäe, K., Prave, A.R., Romashkin, A.E., Črne, A.E., Martin, A.P., Fallick, A. E., Somelar, P., Üpraus, K., Mänd, K., Roberts, N. M. W., van Zuilen, M. A., Wirth, R., Schreiber, A. 2014. Potential influence of sulphur bacteria on Palaeoproterozoic phosphogenesis. – <i>Nature Geoscience</i>, 7, 20-24.
