

UČNI NAČRT PREDMETA/COURSE SYLLABUS

Predmet:	Morska geokemija 1
Course title:	Marine Geochemistry 1

Študijski programi in stopnja	Študijska smer	Letnik	Semestri
Geologija, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	

Univerzitetna koda predmeta/University course code: 11289

Predavanja	Seminar	Vaje	Klinične vaje	Druge oblike študija	Samostojno delo	ECTS
30	0	0	0	15	45	3

Nosilec predmeta/Lecturer: Matej Dolenc, Nastja Rogan Šmuc

Vrsta predmeta/Course type: Izbirni / Elective

Jeziki/Languages:	Predavanja/Lectures:	Angleščina, Slovenščina
	Vaje/Tutorial:	Angleščina, Slovenščina

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

Prerequisites:

Vpisan izbirni predmet ter obvezno opravljeni izpiti iz Kemije in Geokemije za pristop k izpitu.	Inscription to the Course, and passed exams of Chemistry and Geochemistry to take an exam.
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Vsebina:

Content (Syllabus outline):

Oceani preteklosti. Oceani danes. Oceani in podnebje. Geološki ocean. Vnos snovi v oceane. Transport materiala v oceane: rečne, atmosferske in hidrotermalne poti. Opisna oceanografija. Raztopljeni plini v morski vodi. Nutrienti, organski ogljik in ogljikov cikel. Partikularna snov v oceanih.	Oceans of the past. The seas of today. Oceans and climate. The geological ocean. The input of material to the oceans. The transport of material to the oceans: river, atmospheric and hydrothermal pathways. Descriptive oceanography. Dissolved gasses in sea water. Nutrients, organic carbon and carbon cycle. Particulate matter in the oceans.
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Temeljna literatura in viri/Readings:

CHESTER, R., 2003: Marine Geochemistry. Blackwell Publishing, 506 p. SHULZ, H.D. & ZABEL, M. (eds.), 2006: Marine Geochemistry. Springer, 574 p. PRAGER, E.J. & EARLE S.A., 2000: The oceans. McGraw-Hill, 307 p.

Cilji in kompetence:

Objectives and competences:

CILJI: Slušatelj osvoji osnovno znanje o procesih, ki vplivajo na že znane časovne in prostorske spremembe v kemični sestavi morske vode, osvoji osnovo znanje in postopke vzorčenja ter analiznih tehnik za morske sedimente. Naučijo se, kako deluje moderno interdisciplinarno delovanje in raziskovanje morja.	OBJECTIVES: Students learn about the processes responsible for the observed temporal and spatial patterns in marine chemistry, learn about fundamental sampling methods and analyses techniques for marine sediments. Students learn to think in geological time scales and how modern interdisciplinary marine
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<p>KOMPETENCE: Slušatelj je sposoben določiti mehanizme, ki spreminjajo povprečno vsebnost elementov v oceanih in njihov vpliv ter odzivni čas za različne elemente. Sposoben je identificirati procese vezane za kemično sestavo organske snovi in za antropogeni CO₂ v morskem okolju.</p>	<p>environment works. COMPETENCES: Students learn to identify mechanisms which change the mean concentration of elements in the ocean and the influence of residence time and response times for various elements. Identify the processes regulating carbon chemistry in the ocean and the uptake of anthropogenic CO₂.</p>
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<p>Predvideni študijski rezultati:</p> <p>Slušatelj razume in prepozna morske geokemične procese v času in prostoru. Slušatelj je sposoben prepoznati mehanizme, ki spremljajo porazdelitev in koncentracijo elementov s posebnim poudarkom na CO₂, nutrienite in partikulatno organsko snov. Slušatelj je sposoben uporabiti znanje o preteklih spremembah in na podlagi podatkov napovedati prihodnje scenarije. Sposoben je interpretirati geokemične podatke morskih sedimentov in ugotoviti procese, ki se dogajajo znotraj sedimenta. Pri delu je slušatelj sposoben sodelovati s strokovnjaki iz ostalih področij (biologi, kemiki...), uporabljati domačo in tujo strokovno in znanstveno literaturo.</p>	<p>Intended learning outcomes:</p> <p>The student understands and recognizes the processes generating the marine geochemical trends and time series. The student is able to identify mechanisms that changes the distribution and concentration of elements, with special emphasis of CO₂, nutrients and POM. The student is able to use of knowledge on past changes to predict future scenarios and is able to interpretate the geochemical data relative to marine sediments and other processes occurring within the sediments. The student is able to work with professionals from other fields (biologists, chemists...), he is able to use domestic and foreign professional and scientific literature.</p>
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<p>Metode poučevanja in učenja:</p> <p>Predavanja in 2 dni terenskega dela. PowerPoint predstavitev.</p>	<p>Learning and teaching methods:</p> <p>Lectures and 2 days of field work. PowerPoint presentations.</p>
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Načini ocenjevanja:	Delež/Weight	Assessment:
Pisni izpit	45,00 %	Written exam
Vaje - kolokvij	40,00 %	Tutorial exam
Terenska poročila	10,00 %	Field reports
Aktivno sodelovanje pri predmetu	5,00 %	Active participation in Course

<p>Reference nosilca/Lecturer's references:</p> <p>MEDAKOVIĆ, Davorin, DOLENEC, Tadej, KARLOVIĆ, Danijel, VRHOVNIK, Petra, ROGAN ŠMUC, Nastja, RONČEVIĆ, Sanda, PITAREVIĆ SVEDRUŽIĆ, Lovorka, DOLENEC, Matej. Trace metals in fish biominerals as environmental indicators: handheld XRF analyses. V: MARIN, Frédéric (ur.). Biomineralization: from fundamentals to biomaterials & environmental issues, (Key Engineering Materials, ISSN 1013-9826, Vol. 672). Pfaffikon: Trans Tech Publications. 2016, vol. 672, str. 328-339.</p> <p>ŽVAB ROŽIČ, Petra, DOLENEC, Tadej, LOJEN, Sonja, KNIEWALD, Goran, DOLENEC, Matej. Use of stable isotope composition variability of particulate organic matter to assess the anthropogenic organic matter in coastal environment (Istra Peninsula, Northern Adriatic). Environmental earth sciences, ISSN 1866-6280, 2015, vol. 73, no. 7, str. 3109-3118.</p> <p>KOMAR, Darja, DOLENEC, Matej, LAMBAŠA, Živana, SANJA SLAVICA, Matešić, LOJEN, Sonja, KNIEWALD, Goran, VRHOVNIK, Petra, DOLENEC, Tadej, ROGAN ŠMUC, Nastja. Geochemical characterization and environmental status of Makirina Bay sediments (northern Dalmatia, Republic of Croatia). Geologia Croatica : a journal of the Institute of Geology Zagreb and Croatian Geological Society, ISSN 1330-030X, 2015, vol. 68, no. 1, str. 79-92.</p> <p>DOLENEC, Matej, ŽVAB ROŽIČ, Petra, MIHELČIĆ, Goran, LAMBAŠA, Živana, LOJEN, Sonja, KNIEWALD, Goran, DOLENEC, Tadej, ROGAN ŠMUC, Nastja. Use of stable nitrogen isotope signatures of anthropogenic organic matter in the coastal environment: a case study of the Kosirina Bay (Murter Island, Croatia). Geologia Croatica : a journal of the Institute of Geology Zagreb and Croatian Geological Society, ISSN 1330-030X, 2011, vol. 64, no. 2, str. 143-152.</p>
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