

## UČNI NAČRT PREDMETA/COURSE SYLLABUS

<b>Predmet:</b>	Gomedicina
<b>Course title:</b>	Geomedicine

<b>Študijski programi in stopnja</b>	<b>Študijska smer</b>	<b>Letnik</b>	<b>Semestri</b>
Geologija, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	

**Univerzitetna koda predmeta/University course code:**

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

**Nosilec predmeta/Lecturer:**

**Vrsta predmeta/Course type:**

<b>Jeziki/Languages:</b>	<b>Predavanja/Lectures:</b>	Angleščina, Slovenščina
	<b>Vaje/Tutorial:</b>	Angleščina, Slovenščina

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

Pogoj za vključitev v delo je vpisan izbirni predmet v dodiplomskem študiju ter opravljen izpit iz Kemije in Geokemije za pristop k izpitu.

**Prerequisites:**

The condition for inclusion is enrolled elective subject in undergraduate study and passed exam of Chemistry and Geochemistry to take an exam.

**Vsebina:**

Naravna obilnost in porazdelitev prvin vs. antropogenim virom  
 Kemijski vidik vnosa prvin  
 Biološki vidik vnosa prvin  
 Biološka funkcija prvin  
 Geološki vpliv na prehrano  
 Biološki odzivi na prvine  
 Vulkanske emisije in zdravje  
 Izbrani elementi (radon, fluor, jod, selen, potencialno strupenih elementov ...), v zraku, tleh, vodi  
 Biološka razpoložljivost prvin v tleh  
 Geofagija  
 Živali in medicinski geologija  
 Okoljska epidemiologija  
 Okoljska patologija  
 Toksikologija  
 Speciacija prvin  
 Mineralogija kosti

**Content (Syllabus outline):**

Natural distribution and abundance of elements vs. anthropogenic sources  
 Uptake of elements from a chemical point of view  
 Uptake of elements from a biological point of view  
 Biological functions of the elements  
 Geological impact on nutrition  
 Biological responses of elements  
 Volcanic emissions and health  
 Selected elements (radon, fluoride, iodine, selenium, potentially toxic elements...) in air, soil, water  
 Bioavailability of elements in soil  
 Geophagy  
 Animals and medical geology  
 Environmental epidemiology  
 Environmental pathology  
 Toxicology  
 Speciation of elements  
 Mineralogy of bone

**Temeljna literatura in viri/Readings:**

SELINUS, O., 2005, Essentials of Medical Geology. Elsevier, 812 p.

**Cilji in kompetence:**

**Objectives and competences:**

<p><b>CILJI:</b> Slušatelj pridobi znanje o povezavi in vplivu nekaterih mineralov in geokemičnih prvin na zdravje, v smislu izpostavljenosti in vnosa toksičnih in koristnih substanc v organizem ter vpliva geoloških faktorjev na bivalno okolje.</p> <p><b>KOMPETENCE:</b> Študent je sposoben prepoznati koristne in toksične geološke materiale v človekovem okolju ter predlagati rešitve za zmanjšanje/povečanje njihovega vpliva na človeka.</p>	<p><b>OBJECTIVES:</b> Students will learn about the connection and the impact of certain minerals and geochemical elements on health, in terms of exposure and intake of toxic substances in the organisms, and the impact of geological factors on the living environment.</p> <p><b>COMPETENCES:</b> The student is able to recognize the beneficial and toxic geological materials in the environment, and to propose solutions to reduce / increase their impact on humans.</p>
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<p><b>Predvideni študijski rezultati:</b></p> <p>Študent razume prisotnost kemijskih prvin in mineralov v človeškem telesu in njegovi neposredni okolici, pozna njihov pomen in pomembnost glede na delovanje in nastajanje. Iz drugih področij (medicina, kemija,...) je slušatelj sposoben pridobiti in uporabiti potrebna znanja za celostno reševanje problematike s področja vpliva geoloških dejavnikov na zdravje in bivalno okolje. Pri delu je sposoben sodelovati s strokovnjaki iz ostalih področij (medicina, kemija, fizika, biologija, ...) pozna analitske naprave, domačo in tujo strokovno literaturo ter relevantne računalniške programe.</p>	<p><b>Intended learning outcomes:</b></p> <p>The student understands the presence of chemical elements and minerals in the human body and its immediate surroundings, gets familiar with their meaning and significance in relation to the operation and production. The student is able to anticipate, identify and solve the problems of interaction of living environment and the human body with the mineralogical and geochemical aspects. The student is able to acquire and apply the necessary skills from the other fields (medicine, chemistry, ...), to for comprehensive problem solving of the geological factors influence on the health and living environment. Student is able to work with professionals from other fields (medicine, chemistry, physics, biology, ...), knows the analytical devices, domestic and foreign professional literature and relevant computer programs.</p>
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<p><b>Metode poučevanja in učenja:</b></p> <p>Predavanja in seminarske vaje.</p>	<p><b>Learning and teaching methods:</b></p> <p>Lectures and seminar work.</p>
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<b>Načini ocenjevanja:</b>	<b>Delež/Weight</b>	<b>Assessment:</b>
Pisni ali ustni izpit	80,00 %	Written or oral examination
Seminarske vaje	20,00 %	Seminar work.

<p><b>Reference nosilca/Lecturer's references:</b></p> <p>ZUPANČIČ, Nina. Lead contamination in the roadside soils of Slovenia. <i>Environ. geochem. health</i>, 1999, no. 1, vol. 21, str. 37-50.</p> <p>ZUPANČIČ, Nina, PIRC, Simon. Calcium distribution in soil and stream sediments in Istria (Croatia) and the Slovenian littoral. <i>J. geochem. explor.</i> [Print ed.], 1999, vol. 65, str. 205-218.</p> <p>ZUPANČIČ, Nina. The influence of vegetation type on metal content in soils. <i>RMZ-mater. geovviron.</i>, 2012, vol. 59, no. 2/3, str. 229-244.</p> <p>GLAVAŠ, Neli, MOURELLE, Lourdes Maria, GÓMEZ, Carmen P., LEGIDO, José Luis, ROGAN ŠMUC, Nastja, DOLENEC, Matej, KOVAČ, Nives. The mineralogical, geochemical, and thermophysical characterization of healing saline mud for use in pelotherapy. <i>Applied clay science</i>, ISSN 0169-1317. [Print ed.], 2017, vol. 135, str. 119-128, ilustr., doi: <a href="https://doi.org/10.1016/j.clay.2016.09.013">10.1016/j.clay.2016.09.013</a>.</p> <p>ROGAN, Nastja, DOLENEC, Tadej, SERAFIMOVSKI, Todor, JAČIMOVIĆ, Radojko, DOLENEC, Matej. Major and trace elements in rice seeds from Kočani field, Macedonia. <i>Acta chim. slov.</i>, [Tiskana izd.], 2007, vol. 54, no. 3, str. 623-634.</p> <p>DOLENEC, Tadej, LOJEN, Sonja, KNIEWALD, Goran, DOLENEC, Matej, ROGAN, Nastja. Nitrogen stable isotope composition as a tracer of fish farming in invertebrates <i>Aplysina aerophoba</i>, <i>Balanus perforatus</i> and <i>Anemonia sulcata</i> in central Adriatic. <i>Aquaculture</i>, [Print ed.], 2007, vol. 262, is. 2-4, str. 237-249.</p>
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