

## **Department of Chemistry**

Teaching participants: which the subject belongs wording as indicated in this section] Ide not enter names in this section. Leav wording as indicated in this section]   Prerequisite for enrollment: -   Course aims: Acquiring knowledge in the field of heavy metals speciat migration and transport in environment   Basic terms and definitions Spatial and temporal characteristics of heavy metals Differentiation of the elements; igneous, sedimentary, and metamorphic rocks; physical and chemical degradation of rocks; Eh-pH diagrams   Effects of the geochemical processes in soil, water and air of heavy metal speciation, health risk assessment   Speciation and transport of As and Se in the environment   Speciation and transport of Cd, Pb, Cr, Hg, Zn, Ni and U in the environment   Heavy metals speciation analysis   Learning outcomes:   Teaching methodology:   Assessment methods and grading system <sup>1</sup> :   Assessment methods and grading system <sup>1</sup> :	<b>Course ID:</b> HDAH26	Cour	se name: HE	AVY METALS	SPECIATI	ON IN EN	VIRONMENT
ELECTIVE Lectures: 45 Laboratory: 45   Teaching participants: Teachers and associates with expertise in the field which the subject belongs ldo not enter names in this section. Leav wording as indicated in this section]   Prerequisite for enrollment: -   Course aims: Acquiring knowledge in the field of heavy metals speciat migration and transport in environment   Basic terms and definitions Spatial and temporal characteristics of heavy metals Differentiation of the elements; igneous, sedimentary, and metamorphic rocks; physical and chemical degradation of rocks; Eh-pH diagrams   Effects of the geochemical processes in soil, water and air of heavy metal speciation, health risk assessment Speciation and transport of As and Se in the environment Speciation and transport of Cd, Pb, Cr, Hg, Zn, Ni and U in t environment Heavy metals speciation analysis   Learning outcomes: Criteria Maximal score 1. Midterms 2x30 33 2. Seminar work 10 5 3. Final exam 30 17 Total 100 55   Assessment methods and grading system <sup>1</sup> : Score (Grade Grade Grade Criteria Maximal score (B&HI)	Cycle: THIRD	Year	: FIRST	Semester: II	]	ECTS cre	dits: 15
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Assessment methods and grading system1:Spatial and temporal characteristics of heavy metals Differentiation of the elements; igneous, sedimentary, and metamorphic rocks; physical and chemical degradation of rocks; Eh-pH diagrams Effects of the geochemical processes in soil, water and air of heavy metal speciation, health risk assessment Speciation and transport of As and Se in the environment Speciation and transport of Cd, Pb, Cr, Hg, Zn, Ni and U in t environment Heavy metals speciation analysisLearning outcomes:Grading criteria Criteria Maximal score Socres and grading Grade Grade Grade Grade Grade Grade	Course aims:		Acquiring knowledge in the field of heavy metals speciation, migration and transport in environment				
Teaching methodology: Grading criteria   Grading criteria Grading criteria   Criteria Maximal score Required score   1. Midterms 2x30 33   2. Seminar work 10 5   3. Final exam 30 17   Total 100 55   Scores and grading Score Grade   Score (B&H) (ECTS)			Spatial and temporal characteristics of heavy metals Differentiation of the elements; igneous, sedimentary, and metamorphic rocks; physical and chemical degradation of rocks; Eh-pH diagrams Effects of the geochemical processes in soil, water and air on heavy metal speciation, health risk assessment Speciation and transport of As and Se in the environment Speciation and transport of Cd, Pb, Cr, Hg, Zn, Ni and U in the environment				
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Assessment methods and grading system1:CriteriaMaximal scoreRequired score1.Midterms2x30332.Seminar work1053.Final exam3017Scores and gradingScores and gradingScoreGradeGradeGradeGradeScore(B&H)(ECTS)	Teaching methodol	ogy:					
<u></u>			2. Seminar	ns • work am Total Score < 55	Maxir 2 res and gradin G	mal score 2x30 10 30 100 100 100 100 srade B&H) 5	5 17 55 Grade (ECTS) F, FX

<sup>&</sup>lt;sup>1</sup>The grading structure for each subject is determined by the Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

Form SP2

## UNIVERSITY OF SARAJEVO- FACULTY OF SCIENCE Department of Chemistry

	75-84	8	С			
	85-94	9	В			
	95-100	10	А			
	Supplementary literature:					
Literature <sup>2</sup> :	1. Kabata-Pendias A. Trace Elements in Soils and Plants.					
	Boca Raton, London, New York, Washington, DC: CRC					
	Press LLC; 2011.					
	2. Sposito G. The Chemistry of Soils. Oxford University					
	press; 2008.					
	3. Cornelis R. Handbook of elemental speciation:					
	techniques and methodology. John Wiley & Sons;					
	2004.					

<sup>&</sup>lt;sup>2</sup>The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton