



Course ID: HOA401	Course name: BIOINORGANIC CHEMISTRY		
Cycle: FIRST	Year: FOURTH	Semester: VIII	ECTS credits:4
Course status: ELECTIVE	Total course hours: 45 Lectures: 30 Laboratory: 15		
Teaching participants:	Teachers and associates with expertise in the field of Inorganic Chemistry		
Prerequisite for enrollment:	-		
Course aims:	Study of metal function in biological systems.		
Thematic course units:	<ol style="list-style-type: none">1. Physical structure of the cell and inorganic composition2. Transport of sodium and potassium3. Calcium signaling proteins4. Zinc in transcription5. Selective transport and storage of iron6. Oxygen transport and storage7. Electron transfer in metal-dependent biological systems8. Catalytic processes in the body. Enzymes of cobalt, molybdenum and tungsten9. Biological cycles10. Sensory proteins11. Biomineralization12. Chemistry of elements in medicine: Therapy of cancer, arthritis. Diagnosis.		
Learning outcomes:	After the course the student will be able to: <ul style="list-style-type: none">– list and explain the important functions of metals in the biological system– explain the binding of metal ions to biomolecules and their functions– state and explain the structure and function of biomolecules containing iron, copper, cobalt, nickel, zinc		

	<ul style="list-style-type: none"> – explain what biomimetic models are – list metal compounds used in medicine – explain geometry and design of compounds with biological activity
Teaching methodology:	Auditory lectures, laboratory exercises
Assessment methods and grading system¹:	Grading criteria
	Criteria Maximal score Required score
	1. Class attendance 5 3
	2. Class activities 5 2
	3. Midterms 40 22
	4. Final exam 40 22
	Total 100 55
	Scores and grading
	Score Grade (BiH) Grade (ECTS)
	< 55 5 F, FX
	55–64 6 E
65–74 7 D	
75–84 8 C	
85–94 9 B	
95–100 10 A	
Literature²:	<p>Mandatory literature:</p> <ol style="list-style-type: none"> 1. Atkins, P., & Overton, T. (2010). Shriver and Atkins' inorganic chemistry. Oxford University Press, USA. 2. Kaim, W., Schwederski, B., & Klein, A. (2013). Bioinorganic Chemistry--Inorganic Elements in the Chemistry of Life: An Introduction and Guide. John Wiley & Sons. <p>Supplementary literature:</p> <ol style="list-style-type: none"> 1. Bertini, G., Gray, H. B., Gray, H., Valentine, J. S., Stiefel, E. I., & Stiefel, E. (2007). Biological inorganic chemistry: structure and reactivity. University Science Books.

¹The 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

²The 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