



<b>Course ID:</b> HOA409	<b>Course name: BIOINORGANIC CHEMISTRY</b>		
<b>Cycle: FIRST</b>	<b>Year: FOURTH</b>	<b>Semester: VIII</b>	<b>ECTS credits:3</b>
<b>Course status: ELECTIVE</b>	<b>Total course hours: 45</b> Lectures: 30 Laboratory: 15		
<b>Teaching participants:</b>	Teachers and associates with expertise in the field of Inorganic Chemistry		
<b>Prerequisite for enrollment:</b>	-		
<b>Course aims:</b>	Study of metal function in biological systems.		
<b>Thematic course units:</b>	<ol style="list-style-type: none"><li>1. Physical structure of the cell and inorganic composition</li><li>2. Transport of sodium and potassium</li><li>3. Calcium signaling proteins</li><li>4. Zinc in transcription</li><li>5. Selective transport and storage of iron</li><li>6. Oxygen transport and storage</li><li>7. Electron transfer in metal-dependent biological systems</li><li>8. Catalytic processes in the body. Enzymes of cobalt, molybdenum and tungsten</li><li>9. Biomineralization</li><li>10. Chemistry of elements in medicine: Therapy of cancer, arthritis. Diagnosis.</li></ol>		
<b>Learning outcomes:</b>	After the course the student will be able to: <ul style="list-style-type: none"><li>– list and explain the important functions of metals in the biological system</li><li>– explain the binding of metal ions to biomolecules and their functions</li><li>– state and explain the structure and function of biomolecules containing iron, copper, cobalt, nickel, zinc</li><li>– explain what biomimetic models are</li><li>– list metal compounds used in medicine</li><li>– explain geometry and design of compounds with</li></ul>		

	biological activity
<b>Teaching methodology:</b>	Auditory lectures, laboratory exercises
<b>Assessment methods and grading system<sup>1</sup>:</b>	<b>Grading criteria</b>
	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
	<b>Scores and grading</b>
	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	
<b>Literature<sup>2</sup>:</b>	<p>Mandatory literature:</p> <ol style="list-style-type: none"> <li>Atkins, P., &amp; Overton, T. (2010). Shriver and Atkins' inorganic chemistry. Oxford University Press, USA.</li> <li>Kaim, W., Schwederski, B., &amp; Klein, A. (2013). Bioinorganic Chemistry--Inorganic Elements in the Chemistry of Life: An Introduction and Guide. John Wiley &amp; Sons.</li> </ol> <p>Supplementary literature:</p> <ol style="list-style-type: none"> <li>Bertini, G., Gray, H. B., Gray, H., Valentine, J. S., Stiefel, E. I., &amp; Stiefel, E. (2007). Biological inorganic chemistry: structure and reactivity. University Science Books.</li> </ol>

<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

<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