



Course ID: HOB405	Course name: PHYSICAL BIOCHEMISTRY		
Cycle: FIRST	Year: FOURTH	Semester: VII	ECTS credits: 4
Course status: ELECTIVE	Total course hours: 45 Lectures: 30 Laboratory: 15		
Teaching participants:	Teachers and associates with expertise in the field to which the subject belongs		
Prerequisite for enrollment:	-		
Course aims:	The aim of the course is to introduce students to the physiological function of biomolecules, the relationship between the chemical environment and the physico-chemical properties of the structure of the biomolecule.		
Thematic course units:	<ol style="list-style-type: none">1. Functionality structure of biomacromolecules2. The application of thermodynamic laws in biochemistry3. Energetics and mechanisms of membrane transport4. The binding of ligands to macromolecules: types of multiple equilibrium5. Mechanisms of allosteric regulation6. Computational and graphical analysis of the mechanisms of enzyme and receptor responses7. Experimental methods for collecting data on the degree of saturation of the macromolecule ligand8. Computational and analytical methods for the analysis of thermodynamic and kinetic measurements in the study of mechanisms of biochemical and biological processes at the molecular level		
Learning outcomes:	<p><i>Knowledge:</i> Acquisition of knowledge about physiological functions of biomolecules, thermodynamic laws, energy and transport and binding of ligands to macromolecules.</p> <p><i>Skills:</i> To enable the student about the basic theoretical foundations of biomolecule functionality and their interactions with other biomolecules and / or ligands.</p> <p><i>Competencies:</i> The student will be able to theoretically recognize and assume the interactions of molecules, as well as using experimental methods.</p>		
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	10	5
	3. Midterms	45	25
	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. Klotz, I. (1986) Introduction to Biomolecular Energetics, Academic Press 2. Roberts, D. V. (1977) Enzyme Kinetics, Cambridge Chemistry Texts 3. Hulme, E.C. (1992) Receptor - Ligand Interactions, A practical approach, IRL Press 4. Popović-Bijedić A., Mojović, M. (2017) Praktikum iz biofizičke hemije, Planeta Print <p>Supplementary literature:</p> <ol style="list-style-type: none"> 5. Floegel, M. (1993) Fizikalna biokemija I i II, skripta 6. Voet, D., Voet, J.G. (2004) BIOCHEMISTRY, 3 rd ed. J. Wiley & Sons, New York 7. Chang, R., (2005) Physical chemistry for the Biosciences. Williams College. University Science Books, Sausalito, California; str. 599-635. 		

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