



Course ID: HOB362		Course name: BIOCHEMISTRY II	
Cycle: FIRST	Year: THIRD	Semester: VI	ECTS credits: 8
Course status: MANDATORY		Total course hours: 105 Lectures: 45 Laboratory: 60	
Teaching participants:	Teachers and associates with expertise in the field of dynamic biochemistry		
Prerequisite for enrollment:	-		
Course aims:	Introducing students to the biosynthesis of the most important biopolymers such as proteins and nucleic acids. Acquiring knowledge about integral metabolism and molecular basis of inheritance.		
Thematic course units:	<ol style="list-style-type: none">1. Metabolism of proteins and amino acids;2. Metabolism of pyrimidine and purine;3. Nucleoproteins and biosynthesis of proteins;4. Metabolism of carbohydrates;5. Catabolism and biosynthesis of glycogen;6. Pentose phosphate pathway and gluconeogenesis;7. Metabolism of lipids;8. Metabolism of cholesterol and bile acids;9. Biochemistry of hormones; Feed-back mechanism;10. Biochemistry of vitamins;11. Integral metabolism;12. Transmission of genetic information13. Replication of DNA;14. Bacterial transcription transcription control;15. Cellular translation system;16. Eukaryotic genome organization;17. Eukaryotic transcription and RNA processing;18. Development of genetic and protein engineering.		
Learning outcomes:	<p><i>Knowledge:</i> The student will learn the most important metabolic pathways of carbohydrates, lipids, proteins, nucleic acids, hormones, vitamins and other biomolecules that are important in living organisms.</p> <p><i>Skills:</i> The student will be able to independently present the most important metabolic pathways of the basic classes of nutrient, building and signaling biomolecules, and to describe the main mechanisms of energy storage within these pathways.</p>		

	<p><i>Competencies:</i> The student will have competencies to discuss independently the main catabolic and anabolic pathways of basic types of the storage, structural and signaling biomolecules, integral metabolism within living cells, and to describe the valid mechanisms of energy accumulation within these metabolic processes.</p>																																													
Teaching methodology:	Classroom lectures and laboratory exercises.																																													
Assessment methods and grading system¹:	<table border="1"> <thead> <tr> <th colspan="3">Grading criteria</th> </tr> <tr> <th>Criteria</th> <th>Maximal score</th> <th>Required score</th> </tr> </thead> <tbody> <tr> <td>1. Class attendance</td> <td>5</td> <td>3</td> </tr> <tr> <td>2. Class activities</td> <td>10</td> <td>5</td> </tr> <tr> <td>3. Midterms</td> <td>45</td> <td>25</td> </tr> <tr> <td>4. Final exam</td> <td>40</td> <td>22</td> </tr> <tr> <td>Total</td> <td>100</td> <td>55</td> </tr> <tr> <th colspan="3">Scores and grading</th> </tr> <tr> <th>Score</th> <th>Grade (B&H)</th> <th>Grade (ECTS)</th> </tr> <tr> <td>< 55</td> <td>5</td> <td>F, FX</td> </tr> <tr> <td>55–64</td> <td>6</td> <td>E</td> </tr> <tr> <td>65–74</td> <td>7</td> <td>D</td> </tr> <tr> <td>75–84</td> <td>8</td> <td>C</td> </tr> <tr> <td>85–94</td> <td>9</td> <td>B</td> </tr> <tr> <td>95–100</td> <td>10</td> <td>A</td> </tr> </tbody> </table>	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 (B&H)	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
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Literature²:	<p>Mandatory literature:</p> <ol style="list-style-type: none"> Berg JM, Tymoczko JL, Stryer L (2002) BIOCHEMISTRY, 5th ed. W.H. Freeman & Co., New York Voet D, Voet JG (2004) BIOCHEMISTRY, 3rd ed. J. Wiley & Sons, New York <p>Supplementary literature:</p> <ol style="list-style-type: none"> Nelson DL, Cox MM (2013) LEHNINGER PRINCIPLES OF BIOCHEMISTRY, 6th ed. Worth Publishers, New York. Authorized lectures. Ašimović Z., (2017) Uvod u metaboličku biohemiju (odabrana poglavlja). Univerzitet u Sarajevu, Poljoprivredno-prehrambeni fakultet. 																																													

¹ 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

² 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