

## COURSE DESCRIPTION (SYLLABUS)

1.	Course:  <b>Structure and Function of Biomacromolecules</b>
2.	Language of instruction:  <b>English</b>
3.	Faculty:  <b>Faculty of Biotechnology</b>
4.	Course/module code:  <b>29-BT-S1-E2-EnSFB</b>
5.	Course/module type ( <i>mandatory or elective</i> ):  <b>mandatory</b>
6.	Programme:  <b>Biotechnology</b>
7.	Study cycle ( <i>1st/2nd</i> ):  <b>1 cycle</b>
8.	Year:  <b>1st</b>
9.	Semester ( <i>autumn or spring</i> ):  <b>autumn</b>
10.	Form of tuition and number of hours: Lecture: <b>45 h</b> Learning methods: <b>Lectures, discussions, multimedia presentations</b>
11.	Name, Surname, academic title  <b>Dagmara Jakimowicz, Prof.</b>
12.	Initial requirements ( <i>knowledge, skills, social competences</i> ):  <b>No requirments</b>
13.	Objectives:  <b>Knowledge about the structure and functions of proteins, carbohydrates, lipids and nucleotides.</b>
14.	Content:  <b>Molecular bases of life.</b> <b>Water in biological systems.</b> <b>Amino acids and proteins. Protein structures. Biological functions of proteins.</b> <b>Mechanisms of enzyme action, regulation of enzymes activity.</b>

	<p><b>The structure and function of lipids: membrane, storage and signalling lipids.</b></p> <p><b>Biological membranes.</b></p> <p><b>The structure and function of carbohydrates: monosaccharides and their derivatives, storage and structural polysaccharides, proteoglycans and glycoproteins.</b></p> <p><b>The role of nucleotides, structure of nucleic acids.</b></p>	
15.	<p>Learning outcomes:</p> <p><b>Student is able to make a qualitative and quantitative description of the basic biological phenomena and processes.</b></p> <p><b>Student has extensive knowledge in the field of biochemistry, knows the structure, function and metabolism of proteins, carbohydrates, lipid compounds and nucleic acids.</b></p> <p><b>Student knows the basic concepts, terms, techniques used in biochemistry.</b></p> <p><b>Student has knowledge of the basic techniques and research tools used in biochemistry.</b></p> <p><b>Student reads and understands scientific literature in the field of biochemistry, which describes structures and functions of proteins, carbohydrates, lipids and nucleotides.</b></p> <p><b>Student takes advantage of the online resources and literature to obtain information in the area biochemistry.</b></p> <p><b>Student knows how to orally present in English reports of selected scientific issues and make discussions.</b></p> <p><b>Student learns a given subject by himself.</b></p>	<p>Outcome symbols:</p> <p>K1_W01</p> <p>K1_W05</p> <p>K1_W06</p> <p>K1_W08</p> <p>K1_U03</p> <p>K1_U04,</p> <p>K1_U11</p> <p>K1_U12</p>
16.	<p>Recommended literature:</p> <ul style="list-style-type: none"> <li>• <b>JM. Berg, JL Tymoczko, L. Stryer, Biochemistry, Macmillan, 2019.</b></li> <li>• <b>R.H. Garrett, C.M. Grisham, Biochemistry, Thomson 2012.</b></li> <li>• <b>D L. Nelson, M. M. Cox Lehninger Principles of Biochemistry, Macmillan, 2017.</b></li> </ul>	
17.	<p>Methods of verification of the assumed learning outcomes:</p> <ul style="list-style-type: none"> <li>• <b>written exam,</b></li> <li>• <b>lecture quizzes,</b></li> <li>• <b>discussions.</b></li> </ul>	
18.	<p>Conditions of earning credits:</p> <ul style="list-style-type: none"> <li>• <b>written exam,</b></li> <li>• <b>lecture quizzes,</b></li> <li>• <b>discussions.</b></li> </ul>	

19.	Student's workload:	
	Activity	Number of hours for the activity
	Hours of instruction (as stipulated in study programme):	
	Lecture with discussion: <b>45 h</b>	55
	Consultation: <b>10 h</b>	
	Student's own work:	
<b>Lecture discussion preparation, literature reading, preparation for the exam</b>	55	
Total number of hours:		<b>110</b>
Number of ECTS:		<b>6</b>