

NAME OF THE COURSE		Biochemistry I					
Code	PMC115	Year of study	3rd				
Course teacher	Matilda Šprung, Assistant Professor Viljemka Bučević Popović, Assistant Professor	Credits (ECTS)	6.5				
Associate teachers		Type of instruction (number of hours)	L	S	E	F	
			30	15			
Status of the course	obligatory	Percentage of application of e-learning	10%				
COURSE DESCRIPTION							
Course objectives	The objective of the course is to gain knowledge about molecular basis of life.						
Course enrolment requirements and entry competences required for the course	The course enrolment prerequisites are Organic Chemistry I and Organic Chemistry II.						
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<p>After completing the course, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. State the properties of water and explain its significance for life processes.</li> <li>2. Identify basic biomolecules and their building blocks.</li> <li>3. Apply the principles of bioenergetics and thermodynamics to living organisms.</li> <li>4. Explain the relationship between protein structure and function.</li> <li>5. Describe the structure of the membrane and show the transfer of water, ions, organic molecules and gases across the membrane.</li> <li>6. Explain the process of gas exchange with reference to the role of hemoglobin and myoglobin.</li> <li>7. Interpret the mechanisms of control of enzyme activity with emphasis on hormonal regulation.</li> </ol>						
Course content broken down in detail by weekly class schedule (syllabus)	<p>Lectures</p> <ol style="list-style-type: none"> <li>1. Introduction to biochemistry (2 hours)</li> <li>2. Molecular basis of life (2 hours)</li> <li>3. Water properties (2 hours)</li> <li>4. Thermodynamics of biological systems (2 hours)</li> <li>5. Amino acids (2 hours)</li> <li>6. Proteins (2 hours)</li> <li>7. Posttranslational modifications (2 hours)</li> <li>8. Secretory and transmembrane proteins (2 hours)</li> <li>9. Lipids and biological membranes (2 hours)</li> <li>10. Cell trafficking (2 hours)</li> <li>11. Vitamins and cofactors (2 hours)</li> <li>12. Enzymes (2 hours)</li> <li>13. Hemoglobin, Myoglobin (2 hours)</li> <li>14. Regulation of enzyme activity (2 hours)</li> <li>15. Hormonal regulation of metabolism (2 hours)</li> </ol> <p>Seminars follow lectures, with one lesson per topic.</p>						
Format of instruction	<input checked="" type="checkbox"/> lectures <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> exercises <input type="checkbox"/> <i>on line</i> in entirety <input type="checkbox"/> partial e-learning <input type="checkbox"/> field work		<input type="checkbox"/> independent assignments <input type="checkbox"/> multimedia <input type="checkbox"/> laboratory <input type="checkbox"/> work with mentor <input type="checkbox"/> (other)				
Student responsibilities	Attendance to at least 70% lectures and seminars.						
Screening student work ( <i>name the</i>	Class attendance	1.5	Research		Practical training		

<i>proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</i>	Experimental work		Report		(Other)	
	Essay		Seminar essay		(Other)	
	Tests	2.0	Oral exam	3.0	(Other)	
	Written exam		Project		(Other)	
Grading and evaluating student work in class and at the final exam	<p>Before each two-hour lecture, a quiz is held on the subject from the previous lecture. Student with score of more than 50% of total number of points, gets higher grade for corresponding partial exam (by one).  The written exam may be taken as two partial exams. At least 50% score is needed from each partial exam for passing grade on the written exam, followed by an oral exam.</p>					
Required literature (available in the library and via other media)	<b>Title</b>				<b>Number of copies in the library</b>	<b>Availability via other media</b>
	Jeremy M. Berg, John L. Tymoczko, Lubert Stryer, Biochemistry, 6th Ed.				8	
Optional literature (at the time of submission of study programme proposal)	<p>Robert K. Murray, David A Bender, Kathleen M. Botham, Peter J. Kennelly, Victor W. Rodwell, P. Anthony Weil, Harper's illustrated biochemistry, 2010  Donald Voet, Judith G. Voet, Charlotte W. Pratt, Fundamentals of Biochemistry, 3rd Ed., 2005, John Wiley &amp; Sons, Inc.  Matilda Šprung, Biochemistry I, powerpoint lectures</p>					
Quality assurance methods that ensure the acquisition of exit competences	<p>Consultations, partial examinations, student survey for subject and teacher evaluation, attendance records, quiz performance analysis, partial and final exams.</p>					
Other (as the proposer wishes to add)						