

NAME OF THE COURSE		Laboratory Course in Biochemistry						
Code	PMC107	Year of study			3rd			
Course teacher	Viljemka Bučević Popović, Assistant Professor	Credits (ECTS)			4			
Associate teachers	Matilda Šprung, Assistant Professor Barbara Soldo, Postdoctoral Fellow	Type of instruction (number of hours)			L	S	E	F
							60	
Status of the course	obligatory	Percentage of application of e-learning			10%			
COURSE DESCRIPTION								
Course objectives	Through their practical work, students are getting familiar with the properties of biological molecules (amino acids, enzymes etc.) and the methods used for their analysis and separation.							
Course enrolment requirements and entry competences required for the course	Having attended Biochemistry I is the course enrolment requirement needed for the course. Entry competences needed are: • Being familiar with basic principles of work in a chemistry laboratory.							
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	After completing the exam, the student will be able to: 1. Describe and interpret the acid-base properties of amino acids 2. Measure enzyme activity, display and analyze kinetics of enzyme reactions 3. Apply electrophoresis technique for biological macromolecule analysis 4. Conduct protein separation by gel filtration 5. Determine protein concentration 6. Analyze the concentration of various biological molecules in natural samples.							
Course content broken down in detail by weekly class schedule (syllabus)	Laboratory exercises: 1. Acid-base properties of amino acids (4 hours) 2. Time course of enzyme reaction. Enzyme kinetics (6 hours) 3. Inhibition of enzyme reaction. Activation of the enzyme reaction (6 hours) 4. Influence of temperature on enzyme activity (4 hours) 5. Protein electrophoresis (6 hours) 6. Nucleic acid electrophoresis (4 hours) 7. Protein separation methods. Gel-filtration (6 hours) 8. Determination of protein concentration by Bradford method (3 hours) 9. Determination of enzyme activity in natural samples: alkaline phosphatase in the sea water (6 hours) 10. Determination of enzyme activity in natural samples: α -amylase in saliva and serum (4 hours) 11. Determination of cholesterol concentration (3 hours) 12. Determination of bilirubin concentration (4 hours) 13. Determination of iron and iron binding capacity (4 hours)							
Format of instruction	<input type="checkbox"/> lectures <input type="checkbox"/> seminars and workshops <input checked="" 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	Attending classes, entry quizzes, lab report, exam							
Screening student work (name the proportion of ECTS credits for each activity so that the total number of	Class attendance	2.0	Research		Practical training			
	Experimental work		Report		Lab reports	0.5		
	Essay		Seminar essay		(Other)			

<i>ECTS credits is equal to the ECTS value of the course)</i>	Tests	0.5	Oral exam		(Other)	
	Written exam	1.0	Project		(Other)	
Grading and evaluating student work in class and at the final exam	Entry quizzes – 10 % Lab report and performance in the lab – 10% Written exam – 80%.					
Required literature (available in the library and via other media)	Title			Number of copies in the library	Availability via other media	
	Biochemistry Practical (laboratory manual)				available	
	Jeremy M. Berg, John L. Tymoczko, Lubert Stryer, Biochemistry, 6th Ed.			8		
Optional literature (at the time of submission of study programme proposal)	Voet, Voet: Biochemistry, 4 izd., John Wiley & Sons, 2011.					
Quality assurance methods that ensure the acquisition of exit competences	The quality of teaching will be monitored by collecting feedback from students through personal consultations, joint conversations and anonymous student surveys. The students' performance in the final exam will be analyzed and used to improve the teaching performance in the next academic year.					
Other (as the proposer wishes to add)						