


KAPITAŁ LUDZKI
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez
 Unię Europejską w ramach
 Europejskiego Funduszu
 Społecznego

UNIA EUROPEJSKA
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 FUNDUSZ SPOŁECZNY


Course title		ECTS code	
Advanced chemistry laboratory - bioorganic chemistry		13.3.0479	
Name of unit administrating study			
null			
Studies			
faculty	field of study	type	drugiego stopnia
Wydział Chemii	Chemia	form	stacjonarne
		specjalty	analityka i diagnostyka chemiczna, chemia obliczeniowa
		specialization	wszystkie
Teaching staff			
dr hab. Elżbieta Jankowska, profesor uczelni; dr Katarzyna Guzow; dr Ewa Wieczerek; dr inż. Irena Bylińska			
Forms of classes, the realization and number of hours		ECTS credits	
Forms of classes		1	
Laboratory classes		classes - 20 h	
The realization of activities		tutorial classes – 2 h	
classroom instruction		student's own work – 3 h	
Number of hours		Total: 25 h - 1 ECTS	
Laboratory classes: 20 hours			
The academic cycle			
2022/2023 winter semester			
Type of course		Language of instruction	
obligatory		polish	
Teaching methods		Form and method of assessment and basic criteria for evaluation or examination requirements	
<ul style="list-style-type: none"> - conducting experiments - discussion - problem solving 		Final evaluation	
		Graded credit	
		Assessment methods	
		<ul style="list-style-type: none"> - assignment work – conducting research and presenting results - (mid-term / end-term) test 	
		The basic criteria for evaluation	
		Assessment work includes the performance of the experimental activities provided for in the program and the presentation of their results along with a discussion in the form of a written report (50% of the final grade) The assessment covers: a) the method of performing experiments (effectiveness and correctness of the applied procedures, compliance with safety rules, self-reliance, ability to analyze the obtained results) b) the manner of presenting performed experiments in the report (substantive correctness, extent of subject exhaustion, formal job evaluation, linguistic correctness) A written test consisting of closed and open questions covering all the issues discussed during the laboratory exercises (50% of the final grade)	
Method of verifying required learning outcomes			
Required courses and introductory requirements			
A. Formal requirements			
Completed courses: organic chemistry, physical chemistry, molecular spectroscopy, biochemistry			
B. Prerequisites			
Knowledge of organic and physical chemistry and biochemistry at the level of first-cycle studies, knowledge of basic principles of safety and hygiene			

<p>at work in the chemical laboratory, knowledge of the basic aspects of the construction and operation of spectral apparatus learned in the course "Physical chemistry", the ability to synthesize simple organic compounds based on procedures, the ability to perform basic chemical calculations</p>	
<p>Aims of education</p> <ul style="list-style-type: none"> • Getting to know students with modern techniques used in bioorganic chemistry, including chemical modifications of biologically active compounds and studies of intermolecular interaction • Teaching students how to conduct experiments in the field of bioorganic chemistry and analysis of the obtained results 	
<p>Course contents</p> <p>a/ isolation of the enzyme from vegetable or fruit, determination of its activity and kinetic parameters using spectrophotometric methods</p> <p>b/ chemical modification of the protein carried out under different conditions (pH, reaction time, presence of denaturant) and determination of the degree of protein labeling by spectroscopic methods (UV-Vis absorption, fluorimetry)</p> <p>c/ study of intermolecular interactions between ligand (fluorescent amino acid or peptide) and cyclodextrin (drug carrier or model system of the receptor binding cavity) by spectrofluorimetric methods</p>	
<p>Bibliography of literature</p> <p>Literature required to pass the course</p> <ul style="list-style-type: none"> • J. McMurry "Chemia Organiczna", PWN Warszawa, 2000 • L. Stryer „Biochemia” PWN, Warszawa, 1997 • J. A. Baltrop, J. D. Coyle, Fotochemia, podstawy, PWN, Warszawa 1987 • P. W. Atkins, Chemia Fizyczna, PWN, Warszawa, 2001 <p>B. Extracurricular readings</p> <p>P. Kafarski, B. Lejczak „Chemia Bioorganiczna” PWN, Warszawa, 1994</p>	
<p>The learning outcomes (for the field of study and specialization)</p>	<p>Knowledge</p> <ul style="list-style-type: none"> • can name and describe applied methods of chemical modification of biologically active compounds during the project implementation • characterizes the individual experimental techniques used during the exercise • identifies scientific and research equipment that he encountered during project implementation and explains the principles of its operation
	<p>Skills</p> <ul style="list-style-type: none"> • demonstrates the ability to chemically modify biologically active compounds • analyzes and verifies the obtained experimental results • draws conclusions from the conducted experiments • presents the results of research in the form of a prepared report, containing a description and justification of the purpose of the work and the adopted methodology as well as the results and their discussion
	<p>Social competence</p> <p>a/ is able to work and cooperate in a group, taking on different roles</p> <p>b/ cares about work safety while performing experiments</p> <p>c/ observes the arrangements regarding the experiments carried out</p>
<p>Contact</p> <p>elzbieta.jankowska@ug.edu.pl</p>	