



**KAPITAŁ LUDZKI**  
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez  
Unię Europejską w ramach  
Europejskiego Funduszu  
Społecznego

**UNIA EUROPEJSKA**  
EUROPEJSKI  
FUNDUSZ SPOŁECZNY



<b>Course title</b>		<b>ECTS code</b>	
Bioanalysis		13.3.1202	
<b>Name of unit administrating study</b>			
null			
<b>Studies</b>			
<b>faculty</b>	<b>field of study</b>	<b>type</b>	first tier studies (BA)
Faculty of Chemistry	Chemical Business	<b>form</b>	full-time
		<b>specialty</b>	all
		<b>specialization</b>	all
Faculty of Chemistry	Chemistry	<b>type</b>	first tier studies (BA)
		<b>form</b>	full-time
		<b>specialty</b>	all
Faculty of Chemistry	Environmental Protection	<b>specialization</b>	all
		<b>type</b>	first tier studies (BA)
		<b>form</b>	full-time
		<b>specialty</b>	all
		<b>specialization</b>	all
<b>Teaching staff</b>			
prof. dr hab. Adam Lesner			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b>	
<b>Forms of classes</b>		2	
Lecture		classes - 15 h	
<b>The realization of activities</b>		tutorial classes - 15 h	
classroom instruction		studnet's own work - 20 h	
<b>Number of hours</b>		TOTAL: 50 h - 2 ECTS	
Lecture: 15 hours			
<b>The academic cycle</b>			
2024/2025 summer semester			
<b>Type of course</b>		<b>Language of instruction</b>	
an elective course		english	
<b>Teaching methods</b>		<b>Form and method of assessment and basic criteria for eveluation or examination requirements</b>	
Lecture will be delivered as multimedia presentation focused on bioanalysis techniques		<b>Final evaluation</b>	
		Graded credit	
		<b>Assessment methods</b>	
		exam	
		<b>The basic criteria for evaluation</b>	
		Lecture: exam (3-5 open questions) positive grades range:	
		100%: 5.0	
		81-90%: 4.5	
		71-80%: 4.0	
		61-70%: 3.5	
		51-60%: 3.0	
		< 51%: 2.0	
<b>Method of verifying required learning outcomes</b>			
<b>Required courses and introductory requirements</b>			
<b>A. Formal requirements</b>			
lack			

<b>B. Prerequisites</b>	
lack	
<b>Aims of education</b>	
Provide the basic topics focused on broad range of analytical methods of biomolecules including electrophoresis, chromatography and others	
<b>Course contents</b>	
Properties of biomolecules. Chromatography (size exclusion, ionic, reverse phase, hydrophobic, covalent, affinity and others). Electrophoresis (planar, vertical) of proteins and nucleic acids in native and denaturing condition. Mass spectrometry assisted analysis	
<b>Bibliography of literature</b>	
Literature required to pass the course: broad range of scientific articles focused on the lecture topic	
<b>The learning outcomes (for the field of study and specialization)</b>	<b>Knowledge</b>
	<b>Skills</b>
	<b>Social competence</b>
	<b>Contact</b>

Chemical Business:  
 K\_BCh\_W07 describes the construction and operating principles of scientific, technological and control-measuring apparatus  
 K\_BC\_W06 enumerates unit processes and describes issues in the field of technology and chemical engineering  
 K\_BCh\_U08 uses the chemical nomenclature and engineering terminology properly  
 K\_BCh\_U09 using the acquired knowledge, skills and various sources of scientific information independently prepares written papers and oral presentations  
 K\_BCh\_K01 identifies the level of her/his own knowledge and skills as well as the need to update engineering knowledge, continuous professional training and personal development  
 Chemistry:  
 K\_W03 explains at an advanced level the relationship between the structure of matter and its observed properties  
 K\_W04 characterizes the methods of chemical compound analysis  
 Environmental Protection:  
 K\_OŚI\_W01 describes at an advanced level the physical, chemical and biological phenomena occurring in nature as well as geological, geomorphological and climatic conditions of the functioning of nature  
 K\_OŚI\_W05 explains at an advanced level the course of natural and anthropopressional physical, chemical and biological processes and phenomena occurring in nature at various levels of matter organisation  
 K\_OŚI\_U03 independently plans and develops her/his own lifelong learning  
 K\_OŚI\_U08 correctly concludes based on the available data from various sources  
 K\_OŚI\_K06 knows and appreciates the practical application of the acquired knowledge and skills in solving problems  
 K\_OŚI\_K10 identifies and sees dilemmas related to pursuing future career

Students are able to provide the fundamental information provided in the lecture including chromatography theory and practice, electrophoretic methods and mass spectrometry coupled techniques.

Students are able to present and explain chemical phenomena and processes, i.e. explain foundation of particular techniques, interpret data analyze information linked to bioanalysis including text, tables, plots, schemes, figures; formulate descriptions of different chemical phenomena and processes, describe them with use of own words and figures (schemes); explain similarities and differences in properties of particular techniques, explain course of different phenomena from everyday life with the use of chemical knowledge in correlation with other sciences; interpret information, formulates conclusions and explain opinions.

Students: understand need for learning, demonstrate inventiveness in determination of main concerns essential for understanding of various duties; understand social aspects of pragmatic usage of knowledge and skills and related obligation

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