



KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez
Unię Europejską w ramach
Europejskiego Funduszu
Społecznego

UNIA EUROPEJSKA
EUROPEJSKI
FUNDUSZ SPOŁECZNY



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

B. Prerequisites	
lack	
Aims of education	
Provide the basic topics focused on broad range of analytical methods of biomolecules including electrophoresis, chromatography and others	
Course contents	
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	
Bibliography of literature	
Literature required to pass the course: broad range of scientific articles focused on the lecture topic	
The learning outcomes (for the field of study and specialization)	Knowledge
	Skills
	Social competence
	Contact

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

adam.lesner@ug.edu.pl