


KAPITAŁ LUDZKI
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez
 Unię Europejską w ramach
 Europejskiego Funduszu
 Społecznego

UNIA EUROPEJSKA
 EUROPEJSKI
 FUNDUSZ SPOŁECZNY


Course title		ECTS code	
Biotech trends		13.3.1203	
Name of unit administrating study			
null			
Studies			
faculty	field of study	type	pierwszego stopnia
Wydział Chemii	Biznes chemiczny	form	stacjonarne
		specjalty	wszystkie
		specialization	wszystkie
		type	pierwszego stopnia
Wydział Chemii	Chemia	form	stacjonarne
		specjalty	chemia biomedyczna, chemia kosmetyków, analityka i diagnostyka chemiczna, chemia żywności
		specialization	wszystkie
		type	pierwszego stopnia
Wydział Chemii	Ochrona środowiska	form	stacjonarne
		specjalty	wszystkie
		specialization	wszystkie
		type	pierwszego stopnia
Teaching staff			
dr Joanna Jeżewska-Fraćkowiak			
Forms of classes, the realization and number of hours		ECTS credits	
Forms of classes		2 classes - 15 h tutorial classes - 15 h student's own work - 20 h TOTAL - 50 h - 2 ECTS	
Laboratory classes			
The realization of activities			
classroom instruction			
Number of hours			
Laboratory classes: 15 hours			
The academic cycle			
2025/2026 summer semester			
Type of course		Language of instruction	
an elective course		English	
Teaching methods		Form and method of assessment and basic criteria for evaluation or examination requirements	
Conversational laboratory classes On-line team sharing materials and methods Multimedia and on-line tools Multimedia presentation on the chosen subject Team work		Final evaluation	
		Graded credit	
		Assessment methods	
		Peer- assesment method via rubricks of the presentation on chosen subject Assessment of the presentation documentary in form of an essay Final grade assessment	
		The basic criteria for evaluation	
		the quality of oral presentation assessed in the terms of presented formal criteria (trustworthy literature bibliography, vocabulary/language, construction of the speech, overall meritoric value and content, innovation, use of multimedia and on-line tools) documenting of the presentation in a form of an essay (punctuality, completeness) Participation in the peer- assessment and discussion, rubricks. Final grade consistent with the scale given in UG Study Regulations	
Method of verifying required learning outcomes			
Required courses and introductory requirements			

A. Formal requirements lack	
B. Prerequisites lack	
Aims of education 1. Presenting the chosen topics from the lecture course contents. 2. Presenting the reliable sources of information, scientific and non-scientific sources of information and chosen multimedia and on-line tools.	
Course contents Molecular biotechnology and cloning, telemedicine, gene therapy, gene editing, organisms cloning, enzyme discovery for sustainable plastic recycling, multiproduct microalgae refineries, animal immunization, display technologies, antibody discovery, biotechnology and biosafety – trends, in silico process modelling of vaccines, oxygen releasing biomaterials, CRISPR/Cas9 systems future application, massive sequencing and metagenomics, GMO's	
Bibliography of literature On-line sources indicated by the lecturer Biochemistry. Jeremy M. Berg, John L. Tymoczko, Lubert Stryer 7th edition	
The learning outcomes (for the field of study and specialization) Chemical Business: K_BCh_W04 describes the role of experiment and computer simulation in the design process of engineering issues K_BCh_W07 describes the construction and operating principles of scientific, technological and control-measuring apparatus K_BCh_U09 using the acquired knowledge, skills and various sources of scientific information independently prepares written papers and oral presentations K_BCh_K02 works individually demonstrating initiative and independence in actions, and effectively cooperates in a team, performing various roles in it Chemistry: K_W01 enumerates laws and theories in chemistry, physics, mathematics and biology K_W10 enumerates and describes the aspects of the construction, operation and use of measuring apparatus and equipment used in experimental works in the field of chemistry and related sciences K_U11 prepares and presents oral presentations in various fields of chemistry in Polish and English, using acquired knowledge and skills as well as basic sources of scientific information K_K02 works individually demonstrating initiative and independence of activity and cooperates in a team fulfilling various roles in it Environmental Protection: K_OŚI_W02 characterises at an advanced level the relationships and relationships between various disciplines of natural sciences and science, uses knowledge of mathematics, physics, chemistry and biology in the description of basic concepts, concepts and principles in environmental protection 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 organization K_OŚI_U13 assesses the performance of tasks K_OŚI_K02 works individually demonstrating initiative and	Knowledge Contemporary trends in biotechnology. Possible future trends in biotech industry. Reliable sources of scientific information. Basic terms and definitions in biotechnology. Basic biotechnological processes.
	Skills Evaluating the reliable source of information, seeking for information. Peer-assessment of the presentation. On- line tools, databases in biotechnology. Multimedia techniques of presentation. Public speech. Written report construction.
	Social competence Understanding the need of further education. Carefully and critically expressing own opinions, bearing in mind and valuing possibilities offered by modern biotechnology. Planning and performing a public speech. Working in team independently and in team. Peer assessment proceeded in team.

independence in actions, and effectively cooperates in a team, performing various roles in it	
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