


**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>	
Repetitory in organic chemistry and biochemistry		13.3.1288	
<b>Name of unit administrating study</b>			
null			
<b>Studies</b>			
<b>faculty</b>	<b>field of study</b>	<b>type</b>	drugiego stopnia
Wydział Chemii	Chemia	<b>form</b>	stacjonarne
		<b>specjalty</b>	Digital Chemistry
		<b>specialization</b>	wszystkie
<b>Teaching staff</b>			
prof. dr hab. Krzysztof Rolka; dr Aleksandra Walewska			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b>	
<b>Forms of classes</b>		3	
Auditorium classes		tutorial classes – 30 h	
<b>The realization of activities</b>		student's own work – 30 h	
classroom instruction		tutorial classes – 15 h	
<b>Number of hours</b>		TOTAL 75 h – 3 ECTS	
Auditorium classes: 30 hours			
<b>The academic cycle</b>			
2023/2024 winter semester			
<b>Type of course</b>		<b>Language of instruction</b>	
obligatory		English	
<b>Teaching methods</b>		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
- discussion		<b>Final evaluation</b>	
- group work		Graded credit	
- problem solving		<b>Assessment methods</b>	
		Single choice test questions and open questions	
		<b>The basic criteria for evaluation</b>	
		Assessment criteria following the University of Gdańsk Study Regulations.	
		Test: positive note from 15-20 questions:	
		91-100%: 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>			
none			
<b>B. Prerequisites</b>			
basic knowledge in organic chemistry			
<b>Aims of education</b>			
familiarize students with the main aspects of organic chemistry and classes of organic compounds			
familiarize students with main aspects of stereochemistry of organic compounds			
familiarize students with types of organic reactions			

familiarize students with basic bioorganic compounds and their role in metabolic pathways familiarize students with importance and relationships of the metabolic pathways and their impact on living organism and natural environment	
<b>Course contents</b> Topics of the lecture: Structure and properties of organic molecules (hybridization, resonance, isomerism, acidity). Types of organic reactions (substitution, elimination, addition, oxidation-reduction, radical reaction). Structure, synthesis and reactions of alkanes, alkenes, alkynes, alkyl halides, aromatic compounds, alcohols, phenols, ethers, epoxides, aldehydes and ketones, carboxylic acids and their derivatives, amines. Chemical structure, physicochemical properties and biological functions of peptides, proteins, nucleic acids, phospholipids, mono- and polysaccharides, energy-rich compounds, thermodynamics of biochemical reactions. Selected metabolic pathways: glycolysis, gluconeogenesis, pyruvate decarboxylation, Krebs cycle, oxidative phosphorylation, glycogen metabolism, fatty acids metabolism, amino acids metabolism.	
<b>Bibliography of literature</b> Literature required to pass the course J. M. Berg, J. L. Tymoczko, L. Stryer, „Biochemistry”, L. G. Wade Jr., „Organic chemistry”, J. McMurry „Organic chemistry” Extracurricular readings Various academic handbooks concerning organic chemistry and biochemistry	
<b>The learning outcomes (for the field of study and specialization)</b> K_W01: uses in-depth knowledge of spectroscopic methods of chemical compound analysis K_W02: has in-depth knowledge in the field of organic chemistry and biochemistry K_W04: applies the acquired knowledge to an in-depth description of the properties of organic compounds, biomolecules and fundamental metabolic pathways K_U01: plans chemical and biochemical experiments of extended complexity K_U03: finds necessary information in specialist literature K_U04: applies acquired knowledge of organic chemistry, biochemistry and related scientific disciplines K_K01: knows the limitations of her/his own knowledge; understands the need for further education K_K05: understands the need for independent search of information in scientific literature	<b>Knowledge</b> Students: know main states of matter; understand structure and properties of organic compounds and bio and macromolecules; understand types of organic reactions with an emphasis of reaction mechanisms, characterize the relationships between the basic groups of biomolecules and fundamental metabolic pathways and their impact on the living organism in relation to the socioeconomic aspects of life
	<b>Skills</b> Students: present plainly – in both speech and writing – correct chemical argumentation; name and write structures and reactions of organic compounds, bio- and macromolecules, present and explain mechanisms of types of organic reactions, write chemical reactions of selected metabolic pathways
	<b>Social competence</b> Students: understand need for learning, inspire other for learning; cooperate in group, taking different roles; exhibit creativity in determination of priorities necessary for realization of different tasks; understand social aspects of practical use of knowledge and abilities as well as connected with them responsibility.
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