University of Gdańsk

Subject card

Subject name and code	Organic Chemistry, PG_00188279		
Field of study	Chemia organiczna (Wykład)		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish Polish
Semester of study	2	ECTS credits	3.0
Learning profile	academic	Assessment form	exam
Conducting unit	Laboratory of Carbohydrate Chemistry -> Department of Organic Chemistry -> Faculty of Chemistry -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Barbara Dmochowska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	0.0	30

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	10.0	35.0	75

Subject objectives

The aim of the course is to provide elementary knowledge of the structure, nomenclature, and reactivity of the basic classes of organic compounds and simple biomolecules. This knowledge serves as an essential tool for studying issues in forensic analytics and for developing the following skills:

a) recognizing correlations between molecular structure and the properties of organic compounds, including stereochemical aspects;

b) correctly presenting and interpreting formulas and representations of organic reactions;

c) applying appropriate terminology that enables effective work in interdisciplinary teams.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[AKRL3_W03] The graduate knows and understands the structure and chemical properties of compounds relevant in forensic examinations.	The student formulates and defines concepts in organic chemistry and classifies the basic groups of organic compounds. They know the methods of obtaining these compounds as well as their physical properties. They recognize the correlation between the structure and the properties of organic compounds. They are able to present, using equations, the characteristic chemical properties that are essential in forensic analysis.	[SW4] test/egzamin - ustny lub pisemny
[AKRL3_K01] The graduate is ready to critically evaluate their own knowledge, understand its importance for solving cognitive and practical problems, and to seek expert opinions when necessary.	The student defines and formulates the fundamental laws and concepts of organic chemistry, particularly in relation to chemical issues in forensic science. They are able to independently search for available materials, assimilate their content, and then apply the acquired information in forensic analysis.	[SK4] test/egzamin - ustny lub pisemny

Subject contents

The lecture covers:

1. Presentation of fundamental information about selected groups of organic compounds: alkanes, alkenes, alkynes, aromatic compounds, alcohols, ethers, aldehydes, ketones, carboxylic acids and their derivatives, amines;
2. The chemistry of multifunctional compounds: amino acids, sugars, proteins;
3. The structure of selected biologically active and hazardous compounds;

It covers:

4. Issues of isomerism, stereochemistry, and the most important reactions characteristic of functional groups;

5. Basic reaction mechanisms: addition (A), substitution (S), and elimination (E);

6. Fundamentals of infrared spectroscopy and nuclear magnetic resonance.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Exam	51.0%	100.0%

Recommended reading

Basic literature	Organic Chemistry, L. G. Wade; Organic Chemistry, McMurry John.
Supplementary literature	Organic Chemistry, Paula Yurkanis Bruice; Organic Chemistry, Morrison R., Boyd R;
eResources addresses	

Example issues/ example questions/ tasks being completed

Desribe the structure and chemical properties of alkanes, alkenes, and alkynes. Provide examples of the application of these compounds in forensic analysis (e.g., in the examination of traces of fuels, solvents, or explosives).

Work placement

Not applicable

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