University of Gdańsk

Subject card

Subject name and code	General chemistry, PG_00196804						
Field of study	Biology						
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			
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	1		Language of instruction	Polish			
Semester of study	1		ECTS credits	3.0			
Learning profile	academic		Assessment form	exam			
Conducting unit	Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Jolanta Kumirska				
	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		6.0		39.0	75
Subject objectives	To present students the general properties of matter and the basic chemical laws governing phenomena occurring in nature.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLL3_U01] The graduate is able to use basic apparatus and research tools and follow the correct sequence of operations in laboratory and field work	Student plans, performs and carries out research experiments, organizes and analyzes the experimental results, draws correct conclusions based on them, and presents the experimental results in writing. Student selects and uses laboratory equipment in accordance with its intended purpose. Conducts calculations using the known chemical laws.	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[BIOLL3_W09] The graduate knows and understands at an advanced level the most important laws and rules of physics and chemistry underlying biological processes and the properties of chemical elements and compounds	Student defines the most important chemical laws and concepts governing phenomena occurring in nature. Student indicates the relationship between the structure of the atom and the properties of the element and its position in the periodic table. Student lists the most important types of chemical bonds. Describes the structure of gases, liquids and solids in terms of the kinetic-molecular model of matter. Student defines molar and percentage concentration. Student describes the most important aspects of energy, kinetics and equilibrium of reactions. Student describes the acid-base properties of aqueous solutions using the concept of pH. Student explains the basic concepts of oxidation-reduction reactions and electrochemical phenomena.	[SW4] test/exam - oral or written
[BIOLL3_W13] The graduate knows and understands at an advanced level the principles of evaluating processes and phenomena using physical and/or chemical measurements	Student describes the basic methods of testing the properties of chemical substances	[SW4] test/exam - oral or written
[BIOLL3_K06] The graduate is prepared to take responsibility for the entrusted equipment/materials and for his/her own work and the work of others	Student shows responsibility for the entrusted equipment and reagents, ensures cleanliness and order at the workplace. Student takes tests and colloquiums and submits reports within the prescribed deadlines.	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written
[BIOLL3_K05] The graduate is prepared to take responsibility for the safety of his/her and that of others, as well as to recognize hazardous situations and take appropriate action	Student follows the rules of safe conduct in a chemical laboratory in such a way as not to pose a threat to one's own health, the health of others and the environment. Student uses the information contained in the Material Safety Data Sheets.	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written

Subject contents

Lecture: Atomistic structure of matter. Periodic table of elements. Chemical bonds. Kinetic-molecular models of states of matter. Solutions, solution concentrations. Energetic effects of chemical reactions. The speed of a chemical reaction. Equilibrium reactions. Acids and bases, pH concept, acid-base equilibria in aqueous solution. Oxidation and reduction reactions. Basics of electrochemistry.

Prerequisites and co-requisites

lack

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
The condition for admission to the exam is obtaining positive grades in the auditorium and laboratory exercises	0.0%	0.0%
Written exam with open questions, closed questions and calculation tasks. The exam is graded in accordance with the guidelines contained in the UG Study Regulations.	51.0%	100.0%

Recommended reading

Basic literature

1. Jones L., Atkins P. 2020. Chemia ogólna. PWN, Warszawa
2. Lee J. D. 1994. Zwięzła chemia nieorganiczna. PWN, Warszawa
3. Pauling L., Pauling P. 1997. Chemia. PWN, Warszawa

	Supplementary literature	1. Bielański A. 2012. Podstawy chemii nieorganicznej. Tom 1, 2. PWN, Warszawa
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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