

Subject card

Subject name and code	Basics of chemistry for bioinformatics students, PG_00155696						
Field of study	Bioinformatics						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Bachelor's studies		Subject group				
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		4.0		
Learning profile	academic		Assessment form		exam		
Conducting unit	Department of Bioinorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Aleksandra Dąbrowska				
	Teachers		dr hab. Aleksandra Dąbrowska				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	0.0	45
	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	45		0.0		55.0	100
Subject objectives	To equip students with the necessary knowledge and skills to effectively utilize chemistry in the field of bioinformatics.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[BIOINL3_U02] Graduate is able to apply knowledge of natural sciences and science to formulate, analyze and solve problems related to bioinformatics		Has the ability to perform calculations and formulations qualitative conclusions based on this.		[SU4] test/exam - oral or written		
	[BIOINL3_W02] Has the scientific knowledge necessary to understand the basic processes in living organisms.		Has general knowledge of chemistry in terms of basic concepts and their applications enabling understanding of chemical phenomena and processes. Knows basic concepts and methods of chemistry necessary to describe chemical changes and phenomena.		[SW4] test/exam - oral or written		
	[BIOINL3_K04] Is aware of the importance of the principles of safety and ergonomics at work; applies the principles of safety at work; is responsible for the safety of himself and others; is able to act in situations of danger		Is responsible for work safety for yourself and others.		[SK4] test/exam - oral or written		
Subject contents	Basic chemical laws and concepts. Principles of the structure of chemical compounds. Types of chemical bonds and interactions. Hybridization and molecular geometry. States of matter. Types of chemical reactions and stoichiometry. Elements of kinetics and thermodynamics. Theories of acids and bases in chemistry. Water as a reaction medium (acids, bases, buffers, polyelectrolytes). Ethics of scientific work in chemistry and bioinformatics.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test-II (excercise)	51.0%	20.0%
	exam (lecture)	51.0%	60.0%
	test-I (excercise)	51.0%	20.0%
Recommended reading	Basic literature	1. L. Jones, P. Atkins <i>Chemia ogólna</i> , Wydawnictwo Naukowe PWN, Warszawa (2016). 2. P. W. Atkins, <i>Podstawy chemii fizycznej</i> , Wydawnictwo Naukowe PWN, Warszawa (2009). 3. T. Kędryna, <i>Chemia ogólna z elementami biochemii</i> , Wydawnictwo ZK, Kraków (1998).	
	Supplementary literature	1. L. Chmurzyński i inni, <i>Obliczenia z chemii ogólnej</i> skrypt UG, Wydawnictwo UG, Gdańsk (2010). 2. A. Dąbrowska, H. Myszka, <i>Ćwiczenia audytoryjne z chemii ogólnej i nieorganicznej</i> , Wydawnictwo UG (2015). 3. Instructions and worksheets prepared by the teacher.	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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