University of Gdańsk

Subject card

Subject name and code	Chemistry for Bioinformatics, PG_00193508		
Field of study	Bioinformatics		
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	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, prof. UG	
	Teachers	mgr Natalia Żukowska dr hab. Aleksandra Dąbrowska, prof. UG	

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_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
[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 advanced 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

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.

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

Document generated electronically. Does not require a seal or signature.