University of Gdańsk

Subject card

Subject name and code	Monographic lecture - Intermolecular interactions in bioinorganic systems, PG_00080896						
Field of study	Chemical Business						
Date of commencement of studies	February 2025		Academic year of realisation of subject	2025/2026			
Education level	Master's studies		Subject group	Obligatory subject group in the field of study Optional subject group			
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	2		Language of instruction	Polish			
Semester of study	3		ECTS credits	3.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Department of Bioinorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Aleksandra Dąbrowska					
	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		5.0		40.0	75
Subject objectives	1. Understanding of basic concepts and bonds/interaction concepts in bioinorganic chemistry. 2. Indication of the role of bonds/interactions and their influence on the properties of matter and selected biochemical processes. 3. Basics of Pharmacokinetics and LADME profile						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BCHMU2_W05] Knows and understands the main trends in the development of chemistry combined with economics as two interpenetrating scientific disciplines.	Knows the basic assumptions of pharmacokinetics and methods for designing drugs based on knowledge of biochemical mechanisms.	[SW4] test/exam - oral or written
[BCHMU2_U02] Is able to define her/his interests, develop them within the chosen direction and in connection with the subject of her/ his master's thesis by implementing the process of self-education and planning her/his professional career.	Has the ability to obtain information from various source materials, including information obtained from electronic databases.	[SU4] test/exam - oral or written
[BCHMU2_U01] Is able to, on the basis of her/his knowledge, propose a solution to problems in chemistry, taking into account the economic aspect by using advanced measurement techniques.	Is able to determine basic physicochemical properties and reactivity chemical compounds based on their composition and structure.	[SU4] test/exam - oral or written
[BCHMU2_W01] Knows and understands complex physicochemical processes and is able to analyse their course in connection with other fields of science.	Has general knowledge of basic concepts, principles and theories of bonds and interactions also in relation to general natural phenomena.	[SW4] test/exam - oral or written
[BCHMU2_K04] Is willing to properly assess the acquired knowledge, respect and disseminate it in order to solve specific cognitive and practical issues.	Understands the importance of basic knowledge in the field of chemistry and the social aspects of practical application of acquired knowledge and skills, as well as the related responsibility.	[SK4] test/exam - oral or written

Subject contents

Atoms and molecules and their surroundings. Theories of chemical bonds. Types of intermolecular interactions and their energy. Factors influencing the strength of bonds and interactions as well as physicochemical properties. Elements of pharmacokinetics.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
exam	51.0%	40.0%
test-I	51.0%	30.0%
test-II	51.0%	30.0%

Recommended reading

Basic literature	1. P.A. Cox, *Krótkie wykłady, chemia nieorganiczna*, PWN Warszawa (2003). 2. F.A. Cotton, G. Wilkinson, P.L. Gaus, *Chemia nieorganiczna - podstawy*, PWN Warszawa (1995).
Supplementary literature	1. N.N. Greenwood, A. Earnshaw, *Chemistry of the elements*, Pergamon, wyd. II (2005). 2. C.E. Housecroft, A.G. Sharpe, *Inorganic chemistry,* Pearson, Prentice Hall, Ed III (2008). 3. S.J. Lippard, J.M. Berg, *Podstawy chemii bionieorganicznej*, PWN Warszawa (1998). 4. I.G. Kaplan, *Intermolecular Interactions*, chap. 1,2,5, Wiley (2006). 5. P. Schuster, G. Zundel and C. Sandorfy, Eds., *The Hydrogen Bond, Recent Developments in Theory and Experiments*, North Holland (1976). 6. Publikacje tematyczne wskazane przez prowadzącego.
eResources addresses	Basic https://bg.ug.edu.pl/ - books and e-books Supplementary https://bg.ug.edu.pl/ - books and e-books

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

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