University of Gdańsk

Subject card

Subject name and code	Monographic lecture - Intermolecular interactions in bioinorganic systems, PG_00082499		
Field of study	Chemistry		
Date of commencement of studies	October 2024	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	4	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
[CHEMMU2_W01] Uses knowledge of spectroscopic methods of chemical compound analysis.	Knows the basic laws and concepts of selected spectroscopic methods (UV-VIS, IR) as well as methods used for determining the physicochemical parameters.	[SW4] test/exam - oral or written
[CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied.	Has specialist knowledge of basic concepts, principles and theories of bonds and interactions also in relation to general natural phenomena	[SW4] test/exam - oral or written
[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.	Understands the importance of basic knowledge regarding intermolecular bonds and interactions as well as practical aspects of applying the acquired knowledge and skills.	[SK4] test/exam - oral or written
[CHEMMU2_W11] Demonstrates general knowledge about the current trends in the development of chemistry as a science and the latest discoveries in this field.	Knows the basic assumptions of pharmacokinetics and methods for designing drugs based on knowledge of biochemical mechanisms.	[SW4] 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.

<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-II</td><td>51.0%</td><td>30.0%</td></tr>
<tr><td>test-I</td><td>51.0%</td><td>30.0%</td></tr>
<tr><td>exam</td><td>51.0%</td><td>40.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">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).</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">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.</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Basic
https://bg.ug.edu.pl/ - books and e-books</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>
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