

<b>Course title</b> Wykład monograficzny - Oddziaływania międzycząsteczkowe w układach bionieorganicznych / Monographic lecture - Intermolecular interactions in bioinorganic systems		<b>ECTS code</b> 13.3.0917	
<b>Name of unit administrating study</b> Faculty of Chemistry			
<b>Studies</b>			
<b>Field of study</b>	<b>Type</b>	<b>Form</b>	
Chemistry	Masters	Full-time studies	
<b>Teaching staff</b> Prof. dr hab. Mariusz Makowski			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b> 3	
<b>A. Forms of classes, in accordance with the UG Rector's regulations</b> lecture		classes - 30 h tutorial classes – 10 h student's own work – 35 h	
<b>B. The realization of activities</b> in-class learning		Total: 75 h - 5 ECTS	
<b>C. Number of hours</b> 30 h lecture			
<b>The academic cycle</b> Second year, summer semester			
<b>Type of course</b> obligatory		<b>Language of instruction</b> Polish	
<b>Teaching methods</b> Lecture with multimedia presentation		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
		<b>A. Final evaluation, in accordance with the UG study regulations</b> course completion (with a grade)	
		<b>B. Assessment methods</b> written test with open questions	
		<b>C. The basic criteria for evaluation or exam requirements</b> Completion of the lecture based on obtaining a positive grade from a written test consisting of open questions covering the issues listed in the program contents. Passing criteria in accordance with the UG Studies Regulations.	
<b>Required courses and introductory requirements</b> None			
<b>Aims of education</b> Leading, through lectures, to understanding and grounding the basic concepts and concepts of intermolecular interactions in bioinorganic chemistry and to indicate the role they play in the chemical bases of selected biochemical processes.			
<b>Course contents</b> Theories of chemical bonds. Types of intermolecular interactions. The molecule and its surroundings. Intermolecular and intramolecular hydrogen bonds. Low energy intermolecular interactions in complex compounds. Factors influencing the strength of intermolecular interactions. Intermolecular interactions and physical properties. Theoretical and experimental evidence of the existence of hydrogen bonds. Elements of pharmacokinetics.			
<b>Bibliography of literature</b>			
<b>A. Literature required to pass the course</b>			
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.			
<b>B. Extracurricular readings</b>			
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 I (2001), Ed II (2005) lub 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.
7. Czasopisma wskazane przez prowadzącego zajęcia.

**Knowledge**

defines basic concepts in the chemistry of bioinorganic interactions;  
lists and characterizes basic biological ligands  
is able to describe the structure and functions of the most important bioinorganic systems;

**Skills**

can describe the structure and functions of the most important inorganic organic systems;

**Social competence**

Is interested in basic chemical processes taking place in the environment and follows literature reports indicated by the subject