


KAPITAŁ LUDZKI
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez
 Unię Europejską w ramach
 Europejskiego Funduszu
 Społecznego

UNIA EUROPEJSKA
 EUROPEJSKI
 FUNDUSZ SPOŁECZNY


Course title		ECTS code	
Diploma lecture - Analytical aspects of intermolecular interactions		13.3.0918	
Name of unit administrating study			
Faculty of Chemistry			
Studies			
faculty	field of study	type	pierwszego stopnia
Wydział Chemii	Chemia	form	stacjonarne
		specjalty	wszystkie
		specialization	wszystkie
Teaching staff			
prof. dr hab. inż. Tadeusz Ossowski; dr Iwona Dąbkowska; dr hab. Grzegorz Romanowski; dr Anna Wcisło; dr Dorota Zarzeczkańska; dr hab. Beata Grobelna, profesor uczelni; dr Jaromir Kira; dr Paweł Niedziałkowski			
Forms of classes, the realization and number of hours		ECTS credits	
Forms of classes		2	
Lecture		classes - 30 h	
The realization of activities		tutorial classes – 15 h	
classroom instruction		student's own work – 5 h	
Number of hours		Total: 50 h - 2 ECTS	
Lecture: 30 hours			
The academic cycle			
2024/2025 summer semester			
Type of course		Language of instruction	
obligatory		polish	
Teaching methods		Form and method of assessment and basic criteria for evaluation or examination requirements	
multimedia-based lecture		Final evaluation	
		Graded credit	
		Assessment methods	
		written exam with open questions (tasks)	
		written exam with multiple choice questions (tasks)	
		The basic criteria for evaluation	
		Positive evaluation of the written exam consisting of 5 open questions (tasks) and 10 multiple choice questions covering the issues listed in the program content of the subject; answers to the questions will require solving tasks related to the presented learning outcomes; the grading scale will be adjusted to the rating range of the assessed works	
Method of verifying required learning outcomes			
Required courses and introductory requirements			
A. Formal requirements			
Analytical chemistry, physical chemistry			
B. Prerequisites			
Basic issues in the field of analytical and physical chemistry, the ability to describe the equilibrium in solution with chemical reactions			
Aims of education			
<ul style="list-style-type: none"> - Acquainting with instrumental and computational techniques for analysis of equilibrium reactions in solution - Ability to select a technique to analyze intermolecular interactions - Ability to write, graphically present and apply chemical programs to describe and analyze intermolecular interactions 			

Course contents	
<p>Practical design of the synthesis of organic compounds. Preparation of samples for spectroscopic measurements (UV-Vis and CD). Spectroscopic and graphical analysis, IR and NMR spectra processing using appropriate software. Basics of electrochemistry in the study of intermolecular interactions. Calculation of acid dissociation constants based on spectroscopic and potentiometric measurements. Equilibrium modeling based on results obtained from potentiometry or spectroscopy. Kinds of intermolecular interactions and their description by means of quantum chemistry. Searching for available databases, using selected databases to find physicochemical properties of selected organic compounds.</p>	
Bibliography of literature	
<p>Literature required to pass the course</p> <p>J. Polster, H. Lachmann, Spectrometric Titrations: Analysis of Chemical Equilibria, Weinheim; Basel (Switzerland); Cambridge, New York NY</p> <p>A. Cygański, Metody spektroskopowe w chemii analitycznej, WNT, Warszawa 2009</p> <p>L. Piela „Idee chemii kwantowej” PWN Warszawa 2003</p> <p>Extracurricular readings</p> <p>J. Inczedy Równowagi kompleksowania w chemii analitycznej, Warszawa PWN 1979</p> <p>J.B. Lambert, H.F. Shurvell, D.A. Lightner, R.G. Cooks, Organic Structural Spectroscopy, Prentice Hall, New Jersey, 1998</p>	
The learning outcomes (for the field of study and specialization)	Knowledge
	Skills
	Social competence
Contact	
tadeusz.ossowski@ug.edu.pl	