

## COURSE DESCRIPTION CHART

<b>Discipline code</b>	12.6-3LEK-B2.3-C	
<b>Name of discipline</b>	Polish	<b>Chemia</b> Chemistry
	English	

### 1. POSITION OF DISCIPLINE IN THE STUDY SYSTEM

<b>1.1. Study speciality</b>	medicine
<b>1.2. Form of study</b>	Full-time
<b>1.3. Level of study</b>	uniform Master's study
<b>1.4. Profile of study</b>	practical
<b>1.5. Specialization</b>	lack
<b>1.6. Unit conducting the discipline</b>	Faculty of Mathematics and Natural Sciences
<b>1.7. Person preparing course description chart</b>	dr hab. prof.UJK Danuta Rasala dr Ewa Tomal
<b>1.8. Person responsible for the discipline</b>	dr hab. prof.UJK Danuta Rasala
<b>1.9. Person conducting the discipline</b>	dr hab. prof.UJK Danuta Rasala dr Ewa Tomal mgr Dariusz Wideł
<b>1.10. Contact</b>	danuta.rasala@ujk.edu.pl

### 2. GENERAL CHARACTERISTICS OF THE DISCIPLINE

<b>2.1. Affiliation to module</b>	Scientific basis of medicine
<b>2.2. Status of discipline</b>	mandatory
<b>2.3. Language of tuition</b>	English
<b>2.4. Semesters for performance of the discipline</b>	1st
<b>2.5. Preliminary requirements</b>	Knowledge of general chemistry, inorganic and organic at the advanced level of secondary school.

### 3. FORMS, WAYS AND METHODS OF CONDUCTING CLASSES

<b>3.1. Types of classes</b>		lecture– 15 hours; laboratory classes– 30 hours
<b>3.2. Way of conducting classes</b>		Courses in the teaching rooms of the UJK The Faculty of Mathematics and Natural Sciences, The Institute of Chemistry
<b>3.3. Way of obtaining credits for classes</b>		Laboratory-credit with grade, written exam
<b>3.4. Didactic methods</b>		Informative lecture, explaining and problem-based, laboratory classes
<b>3.5. List of literature</b>	<b>basic</b>	An Introduction to General, Organic, and Biological Chemistry, Global Edition Autor: Timberlake Karen, ed. by Pearson Higher Education , 2015
	<b>supplementary</b>	John E. McMurry - Organic Chemistry - 8th edition in pdf

#### 4. AIMS, PROGRAMME CONTENT AND EDUCATION OUTCOMES

<p><b>4.1. Aims</b></p> <p>C1- Mastering the basic knowledge in the field of general, analytical and organic chemistry.            C2 - Understanding the properties of inorganic and organic compounds important in biochemistry.            C3 - Conducting chemical calculations and interpretation of the results of conducted experiments.            C4 - Mastering the basics of work in a chemical laboratory and elements quantitative analysis of organic and inorganic compounds.            C5- Development of proper ethical attitudes and abilities to properly communicate.</p>
<p><b>4.2. Programme content</b></p> <p><b>Lecture</b></p> <p><b>The water in the human body.</b> The structure and chemical properties of water. The influence of dissolved substances on the properties of the solutions. Diffusion and osmosis. The osmolarity and tonicity. The Donnan equilibrium. <b>Acid-base balance.</b> The concentration of hydrogen ions, the pH concept. Buffer solutions and function. Henderson-Hasselbalch equation. Buffer capacity. <b>Elements of classical quantitative analysis. Functional groups of organic compounds and nomenclature. Tautomerism. The importance of stereochemistry relates to properties of organic compounds. Chiral molecules. Aromatic hydrocarbons</b> and some their derivatives of biological importance. <b>Amino acids</b> and proteins: structure and classification, physicochemical properties, isoelectric point, peptide bond. <b>Carbohydrates:</b> classification, the chemical properties of monosaccharides, types of isomerism. Some sugar derivatives of biological importance. <b>Lipids:</b> fatty acids – structure and terminology, Triacylglycerols. <b>The heteroaromatic compounds of five and six membered rings with one and two and hetero atoms. The nitrogenous bases:</b> structure and importance in biochemistry.</p> <p><b>Laboratory</b></p> <p>Practical classes related to selected methods of quantitative analysis, simple chemical measurements, and experiments in organic chemistry laboratory</p>
<p><b>4.3. Learning outcome of the course (small, <u>medium</u>, large number of effects)</b></p>

Education outcomes in the discipline				
code	Student who obtained credit	Degree of saturation of outcome in discipline 1 [+] [++] [+++]	Reference to education outcomes	
			For the faculty	For area / standard
Within the scope of <b>KNOWLEDGE:</b>				
W01	knows basic reactions of organic and non-organic compounds in water solutions	++	B.W4.	
W02	knows the structure of simple organic compounds in living organisms	++	B.W10.	
W03	describes the structure and properties of aminoacids and carbohydrates	++	B.W11.	
W04	describes stereochemistry of organic compounds and their importance in biochemistry	+	B.W12.	
Within the scope of <b>SKILLS:</b>				
U01	determines molar and percentage concentration of compounds and the concentration of substances in isoosmotic solutions, both mono- and multi-component	++	B.U3.	
U02	determines the pH of the solution and the effect of changes in the pH on the inorganic and organic compounds;	++	B.U5.	
U03	use databases, including onlines ones, and search for necessary information using available tools	++	B.U11	

Criteria for evaluation of obtained education outcomes							
Grade 3		Grade 3,5		Grade 4	Grade 4,5	Grade 5	
Classes: Accomplishment of laboratory classes and achievement 60-67% of the total number of points from written partition tests. Lecture: Achievement 60 - 67% of the total number of points from written exam.		Classes: Accomplishment of laboratory classes and achievement 68-75% of the total number of points from written partition tests. Lecture: Achievement 68 - 75% of the total number of points from written exam.		Classes: Accomplishment of laboratory classes and achievement 76-83% of the total number of points from written partition tests. Lecture: Achievement 76 - 83% of the total number of points from written exam.	Classes: Accomplishment of laboratory classes and achievement 84-91% of the total number of points from written partition tests. Lecture: Achievement 84 - 91% of the total number of points from written exam.	Classes: Accomplishment of laboratory classes and achievement 92-100% of the total number of points from written partition tests. Lecture: Achievement 92 - 100% of the total number of points from written exam.	
Evaluation methods							
Oralexamination	Writtenexamination	Project	Colloquium - with grade	Homework	Presentation Reports	Discussions	Others
	X		X		X		attendance

## 5. TOTAL ECTS CREDIT POINTS – STUDENT'S WORK LOAD

Category	Student's work load
	Full-time study
<b>Participation in didactic classes specified in the study plan (contact hours)</b>	45
Participation in lectures	15
Participation in classes, discussion sessions, laboratories, etc.	30
Participation in consultations/ PRACTICAL CLASSES	
Preparation for examination/participation in examination, final test, etc.	
Others	
<b>Independent student's work (non-contact hours)</b>	55
Preparation for lecture	
Preparation for classes, discussion sessions, laboratory, etc.	35
Preparation for examination/colloquium	20
Collection of material for the project, web query	
Elaboration of multimedia presentation	
Preparation of entry for wikipedia	
<b>Others</b>	
<b>Total number of hours</b>	100
<b>ECTS credit points for discipline</b>	4

