University of Gdańsk

Subject card

Subject name and code	Introduction to biochemistry, PG_00203337		
Field of study	Medical Biology		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
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	exam
Conducting unit	Department of General and Medical Biochemistry -> Faculty of Biology -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Ewa Laskowska	
	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	4.0	41.0	75

Subject objectives

1. Understanding the structure and functions of macromolecules (proteins, nucleic acids, carbohydrates, lipids) and small-molecule compounds found in the cell.

2. Understanding basic biochemical processes.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLMEDL3_W01] has an advanced knowledge and understanding of the differences in the structure and function of prokaryotic and eukaryotic cells, the structure and properties of the various types of biological macromolecules, the molecular mechanisms of basic metabolic pathways and the flow of genetic information, and the sources of variation in organisms; explains the laws of inheritance	Describes the structure and properties of basic types of biological macromolecules and the molecular mechanisms of basic metabolic pathways.	[SW4] test/exam - oral or written
[BIOLMEDL3_U08] is able to give oral presentations in Polish or English on specific topics in medical biology and can use specialist medical biology terminology in a way that is clear and accessible to both specialists and non-specialists	Is able to use specialized language for medical biology (with particular emphasis on biochemical terms) in a way that is understandable and accessible to both specialists and nonspecialists.	[SU4] test/exam - oral or written
[BIOLMEDL3_W06] idefines the key laws and principles of physics and chemistry that underpin biological processes, describes the properties of elements and chemical compounds, and has an advanced knowledge and understanding of the physicochemical and biological foundations of health sciences	Understands and describes the biochemical basis of health sciences.	[SW4] test/exam - oral or written

Subject contents

The following topics will be discussed during the lecture:

Structure of proteins, nucleic acids, carbohydrates and lipids.

Function of selected proteins. Enzymes-kinetics, catalytic and regulatory strategies.

Main metabolic pathways: glycolysis and gluconeogenesis, citric acid cycle, oxidative phosphorylation, pentose phosphate pathway. Metabolism of amino acids, nucleotides and lipids.

Prerequisites and co-requisites

Completion of courses covering general and organic chemistry. Knowledge of the structure of basic inorganic and organic compounds, chemical bonds, mechanisms of basic chemical reactions, energetics of chemical reactions, hydrophobic interactions, acids and bases, pH, units of measurement, concentration units of solutions.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Test with closed and open-ended questions	51.0%	100.0%

Recommended reading

Basic literature	Biochemistry.Tymoczko John L. Berg Jeremy M. Stryer Lubert Gatto Gregory, Macmillan Education, Macmillan LearningBerg J. M., Stryer L. , Tymoczko J. L., Biochemia. Krótki kurs. PWN Warszawa 2013Biochemistry: A Short Course,
Supplementary literature	Harpers Illustrated Biochemistry. Rodwell Victor W. Bender David A. Botham,
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement

Not applicable