



Subject card

Subject name and code	Biophysics of macromolecules, PG_00072662						
Field of study	Chemical Technology, Chemistry, Biotechnology, Engineering and Technologies of Energy Carriers, Corrosion , Green Technologies, InfoBioChem						
Date of commencement of studies	February 2026	Academic year of realisation of subject			2026/2027		
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Maciej Bagiński					
	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						
	Additional information: Lectures						
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	2.0		18.0	50	
Subject objectives	Lecture content includes the definition, structure, operation and molecular biophysics of various macromolecular systems and cellular macrosystems. The lecture will also present various biophysical methods for studying such systems and their practical aspects. Thanks to such methods, we can learn and understand the operation of macromolecules and macrosystems.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_K01] understands the need to constantly update knowledge based on the state of the art in accordance with the latest scientific literature, improve professional skills and the importance of teamwork	The student recognizes the importance of reliable literature data in evaluating the properties of macromolecules and approaches scientific sources critically.	[SK5] Assessment of ability to solve problems that arise in practice
	[K7_W02] explains the structure and function of biomolecules and the methods and instruments for determining their quantity and activity	knows and can explain the properties and structure of macromolecules using appropriate methods.	[SW1] Assessment of factual knowledge
	[K7_W101] is able to make an in-depth identification of key objects and phenomena related to the field of study, as well as theories that describe them and applicable analytical and design methods	zna i identyfikuje kluczowe zagadnienia i zjawiska w zakresie biofizyki makrocząsteczek.	[SW1] Assessment of factual knowledge
	[K7_U01] designs experiments in accordance with the state of the art and the latest scientific literature, using computer methods of data analysis, computer simulations	is able to propose experimental methods to investigate the biophysical properties of macromolecules.	[SU3] Assessment of ability to use knowledge gained from the subject
	[K7_K101] acknowledges the importance of knowledge related to the field of study in solving cognitive and practical problems, critically assessing the information obtained	appreciates and skillfully uses knowledge of biophysics to solve problems in the field of biotechnology and medicinal chemistry.	[SK5] Assessment of ability to solve problems that arise in practice
	[K7_U04] predicts the interaction of biomolecules and biologically active compounds on living organisms and the course of processes involving them based on knowledge in biology, biotechnology and related fields and computer methods of data analysis, modeling and simulation	is able to predict the properties of macromolecules based on their structure.	[SU2] Assessment of ability to analyse information

<p>Example issues/ example questions/ tasks being completed</p>	<p>elements of the secondary structure of proteins</p> <p>elements of membrane structure</p> <p>elements of the structure of membrane channels</p> <p>structure of macromolecules such as starch, chitin or silk</p> <p>molecular imaging methods</p> <p>fluorescence spectroscopy</p> <p>electron cryomicroscopy</p>
<p>Practical activities within the subject</p>	<p>Not applicable</p>

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