

Subject card

Subject name and code	General microbiology, PG_00198300						
Field of study	Genetics and Experimental Biology						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	academic	Assessment form			exam		
Conducting unit	Laboratory of Extremophile Biology -> Department of Microbiology -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Tadeusz Kaczorowski				
	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		16.0	50
Subject objectives	Understanding the relationship between structure and function in relation to microorganisms, the relationship between basic metabolic processes, the mechanisms regulating bacterial metabolism, the factors determining the virulence of bacteria and viruses, and methods of preventing and combating infections.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GBEL3_W01] A graduate has an advanced knowledge and understanding of: the structure and properties of the main types of biological macromolecules; the molecular mechanisms of basic metabolic pathways and genetic information flow; the sources of genetic variation in organisms and the mechanisms of evolution. They can explain the principles of inheritance, the differences in structure and function between prokaryotic and eukaryotic cells, as well as the structure and functional relationships at the cellular and tissue levels.	Knows the structure and properties of the basic types of biological macromolecules, molecular mechanisms of the pathways of basic metabolism and the flow of genetic information in microorganisms, the sources of genetic variability of microorganisms, and mechanisms of evolution; explains the rules of inheritance; explains the differences in the structure and functioning of prokaryotic and eukaryotic cells.	[SW4] test/exam - oral or written
	[GBEL3_K05] The graduate is prepared to: responsibility for their own and others' safety at work	This effect is realized during practical course. Awareness of responsibility for the safety of one's work and others in the microbiology lab.	[SK8] observation of student's independent or team work
	[GBEL3_U01] The graduate is able to: independently perform practical tasks in the biological and related sciences, formulate research problems, analyse their results and draw conclusions.	This effect is realized during practical course. Effect Can perform practical tasks in microbiology independently, formulate research problems, analyze their results, and draw conclusions.	[SU8] observation of student's independent or team work
	[GBEL3_U07] The graduate is able to: work as part of a team and organise work in accordance with the principles of occupational health and safety and ergonomics.	This effect is realized during practical course. Can work in a team and organize work while maintaining the principles of occupational health and safety and work ergonomics in a microbiology lab.	[SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[GBEL3_W03] A graduate has an advanced knowledge and understanding of: molecular mechanisms of genetic information transfer and gene expression and the molecular and genetic basis of human physiology and disease, including infectious diseases.	Knows the molecular mechanisms of transmitting genetic information and gene expression as well as the molecular and genetic basis of infectious diseases.	[SW4] test/exam - oral or written
[GBEL3_W06] A graduate has an advanced knowledge and understanding of: the development and current state of knowledge and the latest trends in molecular genetics and related fields; indicates their relationship to other disciplines in the life sciences or medical sciences and their potential for use in practice	Possesses knowledge about the development and current state of knowledge in microbiology and the possibilities of its use in practice.	[SW4] test/exam - oral or written	
Subject contents	Functional anatomy of bacteria, basic metabolic processes of bacteria, conditions of bacterial growth, regulation of bacterial metabolism, control of bacterial growth, genetics of bacteria and viruses, mutagenesis and mutational variability of bacteria, fundamentals of virology, microbiological mechanisms of pathogenesis, pathogenic microorganisms, and use of microorganisms in biotechnology.		
Prerequisites and co-requisites	Completed organic chemistry course.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test exam	51.0%	100.0%
Recommended reading	Basic literature	Madigan, M.T., Martinko, J.M., Dunlap, P.V. and Clark, D.P.: Brock Biology of Microorganisms, Pearson	
	Supplementary literature	Murphy, K.: Janeway's Immunobiology, Garland Science	
	eResources addresses		

Example issues/ example questions/ tasks being completed	<p>1. Lipid A is a component of:</p> <ul style="list-style-type: none">a) lipopolysaccharide of enterobacteriab) Brown's lipoprotein of <i>Escherichia coli</i>c) cytoplasmic membrane phospholipids of Gram-negative bacteriad) lipids associated with murein of Gram-positive bacteria <p>2. This bacterium produces a strong neurotoxin that affects peripheral nerves. This refers to:</p> <ul style="list-style-type: none">a) <i>Staphylococcus aureus</i>b) <i>Bacillus anthracis</i>c) <i>Bordetella pertussis</i>d) <i>Clostridium botulinum</i>
Work placement	Not applicable

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