

Subject card

Subject name and code	General microbiology, PG_00146888						
Field of study	Genetics and Experimental Biology						
Date of commencement of studies	October 2025		Academic year of realisation of subject			2025/2026	
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				
Conducting unit	Laboratory of Extremophile Biology -> Department of Microbiology -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Magdalena Plotka				
	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_U07] Work in a team and organize work while adhering to occupational health and safety principles 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_K05] Responsibility for the safety of one's own work and others.	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] Independently perform practical tasks in the field of biological sciences and related disciplines, formulate research problems, analyze 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_W06] the development and current state of knowledge, as well as the latest trends in molecular genetics and related fields; indicating their relationship with other disciplines in the natural or medical sciences and the possibilities of their practical application.	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
	[GBEL3_W03] The molecular mechanisms of genetic information transmission and gene expression, as well as the molecular and genetic basis of human physiology and diseases, 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_W01] Understanding the structure and properties of basic types of biological macromolecules, molecular mechanisms of metabolic pathways and genetic information flow, as well as sources of genetic variability in organisms and mechanisms of evolution; explaining the rules of inheritance, elucidating differences in the structure and functioning of prokaryotic and eukaryotic cells, and understanding 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
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	Adresy na platformie eNauczanie:	

Example issues/ example questions/ tasks being completed	1. Lipid A is a component of: a) lipopolysaccharide of enterobacteria b) Brown's lipoprotein of <i>Escherichia coli</i> c) cytoplasmic membrane phospholipids of Gram-negative bacteria d) lipids associated with murein of Gram-positive bacteria 2. This bacterium produces a strong neurotoxin that affects peripheral nerves. This refers to: 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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