



## Subject card

Subject name and code	Microbiology, PG_00053382						
Field of study	Biomedical Engineering, Biomedical Engineering, Biomedical Engineering						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group			Optional subject group Specialty subject group 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			1.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Beata Krawczyk					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
	Additional information: <ul style="list-style-type: none"><li>materials to the lecture; e-learning</li><li>Quiz; e-learning</li></ul>						
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	15	2.0		10.0		27
Subject objectives	The idea is to introduce students to the techniques used in the microbiological laboratory, acquiring knowledge about the structure and function of a bacterial cell and learning about their role in the human environment.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W51] Knows and understands, to an increased extent, selected aspects of chemistry and biochemistry constituting general knowledge in the field of biomedical engineering.		The student knows the morphology and chemical structure of bacteria and can use them in the identification of bacteria		[SW3] Assessment of knowledge contained in written work and projects		
	[K7_K02] is ready to provide critical evaluation of received content and to acknowledge the importance of knowledge in solving cognitive and practical problems		the ability to choose a diagnostic method, awareness of sterile work in a microbiological laboratory, distinguish between commensal and pathogenic microorganisms		[SK5] Assessment of ability to solve problems that arise in practice		
Subject contents	Why we study microbiology. Classification and identification of microorganisms. The modern classification of Prokaryotes. Microbial growth control, sterilization and disinfection. Microscopes and staining of bacteria. Nutrition of microorganisms, growth of the population of microorganisms (growth phases, cultures of microorganisms, obtaining pure cultures, culture media, special cultivation techniques, storage of cultures. Measurement of microbial growth. General characteristics of prokaryotes (morphology, reproduction, endospores, organization of the prokaryotic cell. Structure and function of the cell) Koch's postulates. Host-microorganism relations - the influence of microorganisms on humans and animals. Natural human microbiota. Basics of pathogenesis.						
Prerequisites and co-requisites	lack						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Quiz		60.0%		100.0%		

Recommended reading	Basic literature	<ul style="list-style-type: none"> <li>• Abigail A. Salyers, Dixie D. Whitt Mikrobiologia, różnorodność, chorobotwórczość i środowisko; PWN</li> <li>• Color Atlas of Medical Bacteriology. Autorzy: Luis M. de la Maza, Marie T. Pezzlo, Cassiana E. Bittencourt, Ellena M. Peterson.</li> <li>• Brock Biology of Microorganisms, Global Edition - Michael Madigan, Kelly Bender, Daniel Buckley, W. Sattley, David Stahl</li> </ul>
	Supplementary literature	<p>Prescott's Microbiology. McGraw.Hill International Edition</p> <p><a href="https://open.oregonstate.edu/generalmicrobiology/chapter/introduction-to-microbiology/">https://open.oregonstate.edu/generalmicrobiology/chapter/introduction-to-microbiology/</a></p>
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	<p>Which sterilization method will we choose for oily substances:</p> <ol style="list-style-type: none"> <li>1. dry hot air</li> <li>2. an autoclave</li> <li>3. chemicals</li> </ol>	
Work placement	Not applicable	

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