

Subject card

Subject name and code	Microbiology - laboratory exercises, PG_00091499						
Field of study	Water Management and Protection of Water Resources						
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 Subject group related to practical vocational preparation		
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	practical		Assessment form				
Conducting unit	Laboratory of Marine Biotechnology -> Department of Marine Biology and Biotechnology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Anna Toruńska-Sitarz				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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		5.0		15.0	50
Subject objectives	Learning the basic principles of working in a microbiology laboratory, implementing microbiological methods and techniques; and basics of microorganism isolation, culture, and identification.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[GWOZW3-K05] take responsibility for the safety of their own work and that of others, dealing with emergencies, exercising caution in the laboratory and in the field, responsibility for entrusted equipment and apparatus		K_1 [K_K05] The student is ready to take responsibility for the safety of his/her own and others' work, to deal with emergencies, to be cautious in the microbiology laboratory, to be responsible for the equipment.		[SK1] oral statement/conversation/discussion [SK4] test/exam - oral or written		
	[GWOZW3-U02] select and independently apply basic research techniques and tools, with adhering to established analytical procedures in the field of environmental research in water management, adequately to the considered research problem		U_2 [K_U02] Students are able to select and independently apply basic techniques and research tools used in microbiology, adequately to the considered research problem.		[SU3] text preparation/written work [SU4] test/exam - oral or written		

Subject contents	1. Basic working principles in the microbiology laboratory.2. Methods of microbial isolation and culture.3. Identification of microorganisms based on classical and modern methods.4. Quantitative analysis of aquatic microorganisms.5. Bacteriological water analysis.		
Prerequisites and co-requisites	none		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Short tests	51.0%	60.0%
	Practical assessment	51.0%	20.0%
	Report	51.0%	20.0%
Recommended reading	Basic literature	Script prepared by the Lecturer.	
	Supplementary literature	Różalski A., Ćwiczenia z mikrobiologii ogólnej. Skrypt dla studentów biologii, Wydawnictwo Uniwersytetu Łódzkiego; Mierzejewska J., Chreptowicz K., Mikrobiologia ogólna i przemysłowa. Ćwiczenia laboratoryjne, Oficyna Wydawnicza Politechniki Warszawskiej.	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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