

Subject card

Subject name and code	Bacteriophages - exercises, PG_00154684						
Field of study	Medical Biology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Molecular Biology -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Bożena Nejman-Faleńczyk				
	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		8.0		12.0	50
Subject objectives	Knowledge of various molecular biology and microbiological techniques used when working with bacteriophages (among others: preparation of phage lysate, titration of phages using whole-plate and spot methods, lysis kinetics, isolation of phage DNA, etc.)						
	Ability to analyze, develop and present research results.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BIOLMEDMU2_W01] has an in-depth knowledge of scientific fields and disciplines relevant to medical biology and the studied specialty and knows their main development trends	A student has in-depth knowledge of the structure and functions of bacteriophages and their importance in medicine (BM2_W01)	[SW3] text preparation/written work
	[BIOLMEDMU2_W04] knows the principles of planning research based on the achievements of biological and medical sciences, the principles of operation of equipment and apparatus used in medical biology research, and the principle of interpreting biological phenomena and processes based on empirical data in research work and practical activities	Knows the principles of research planning based on the achievements of biological sciences medical, principles of operation of equipment and apparatus used in research scope of medical biology and the principle of interpreting phenomena and processes biological sciences based on empirical data in research and activities practical in research on bacteriophages (BM2_W04)	[SW3] text preparation/written work
	[BIOLMEDMU2_K07] is ready to formulate opinions on various aspects of professional activities	A student is ready to express opinions on various aspects related to bacteriophages (BM2_K07)	[SK3] text preparation/written work
	[BIOLMEDMU2_U03] is able to formulate and solve problems on the basis of the known laws and methods, including - using computer tools and statistical methods	A student can formulate and solve problems based on known methods, including using IT tools and statistical methods (BM2_U03)	[SU3] text preparation/written work
	[BIOLMEDMU2_K02] is ready to recognize the importance of knowledge in solving cognitive and practical problems and to seek expert advice when having difficulty solving a problem on his own	A student is ready to recognize the importance of knowledge in the field of bacteriophage biology in solving cognitive and practical problems and to seek the opinion of experts in case of difficulties in solving the problem independently (BM2_K02)	[SK3] text preparation/written work
	[BIOLMEDMU2_U02] is able to plan and conduct experiments and measurements based on advanced research techniques and tools, is able to interpret the obtained results and draw conclusions	As student can plan experiments and select measurement techniques based on advanced research techniques and tools, is able to interpret experimental results and draw conclusions (BM2_U02)	[SU3] text preparation/written work
Subject contents	Techniques of isolation and manipulation of phage DNA, preparation and morphological analysis of phage plaques, multiplication of phages and preparation of phage lysates and their titration to determine the number of phage particles, determination of the lysis profile of bacterial culture after phage infection and analysis of bacterial survival, determination of the efficiency of bacterial infection with phage, spot test, adsorption experiment to the bacterial cell surface, analysis of phage sensitivity to various chemical and physical factors, determination of M.O.I, Pfu/ml, and Cfu/ml values, bioinformatic analysis of phage genomes,		
Prerequisites and co-requisites	Knowledge of basic genetic, biochemical and molecular mechanisms, ability to analyze processes occurring in prokaryotic cells, completed courses in microbiology, genetics, molecular biology and biochemistry.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final grade based on partial grades	51.0%	100.0%
Recommended reading	Basic literature	A.1. used during classesThe exercise materials for students are original, based on original scientific publications and own experience in working with bacteriophagesA.2. studied independently by the studentCurrent scientific publications indicated by the instructor	
	Supplementary literature	Currently appearing publications on bacteriophages	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Calculation of the phage titerPhage titration on the host strainAnalysis of bacterial cell survival after phage infectionVisualization of a phage genome map		
Work placement	Not applicable		

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