University of Gdańsk

Subject card

Subject name and code	Biodiversity of bacteriophages in the environment, PG_00147831		
Field of study	Genetics and Experimental Biology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
Education level	undergraduate 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	3	Language of instruction	Polish Polish
Semester of study	6	ECTS credits	1.0
Learning profile	academic	Assessment form	
Conducting unit	Pracownia Ewolucji Molekularnej i Bioinformatyki -> Katedra Genetyki Ewolucyjnej i Biosystematyki -> Faculty of Biology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Agata Jurczak-Kurek	
	Teachers		

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	0.0	0.0	0.0	15
	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	15	3.0	7.0	25

Subject objectives	- To introduce students to virology using bacterial viruses (bacteriophages) as an example- To familiarize students with the nomenclature of virology- Introduce students to the general knowledge of bacteriophages, their diversity at the biological and genetic levels, and knowledge of their applications.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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.	The student is familiar with the development and current state of knowledge of bacteriophages and the latest trends in their study; indicates the relationship of virology with other disciplines of natural or medical sciences and the possibilities of using bacteriophages in practice; uses specialized vocabulary	[SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[GBEL3_U06] Prepare and deliver oral presentations in Polish and English on specific topics within the field of biology, as well as present ideas and results in written and oral form.	The student has the ability to give oral speeches in Polish and English on specific issues in virology and to present his ideas in written and oral form	[SU2] presentation/project/paper/ report
[GBEL3_W08] information technology applied in genetics and experimental biology.	The student has a general knowledge of bacterial viruses, knows the tools/techniques needed in the analysis of bacteriophages at the molecular level	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[GBEL3_K02] Critical assessment of one's own knowledge and methods in the field of molecular biology and related disciplines, as well as the commercialization of research.	The student is ready to critically evaluate his/her own knowledge and that of the methods of studying viruses with the example of bacteriophages and related fields	[SK1] oral statement/conversation/ discussion [SK5] implementation of a problem task
[GBEL3_U07] Work in a team and organize work while adhering to occupational health and safety principles and ergonomics.	Students are able to work in a team and organize their work in accordance with the principles of work ergonomics	[SU2] presentation/project/paper/ report [SU5] implementation of a problem task [SU8] observation of student's independent or team work

Subject contents

- History of the discovery of bacteriophages- Classification and morphological diversity of bacteriophages- Developmental pathways of bacteriophages using selected examples- Genomics of bacteriophages- Bacteriophage-bacteriophage interactions - evolutionary arms race- Research types and trends in bacteriophage research- Applications of bacteriophages in molecular biology, biotechnology and phage therapy

Prerequisites and co-requisites

Completed course in general microbiology

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Final grade based on partial grades: 50% and a colloquium (possibility of exemption from the colloquium (depending on partial grades): 50%	51.0%	100.0%

Recommended reading

Basic literature

1. Piekarczyk, A. Podstawy wirusologii molekularnej. Wyd. Naukowe PWN, Warszawa 2013

2. Baj, J., Markiewicz, Z. Biologia molekularna bakterii. Wyd. Naukowe PWN, Warszawa 2012

3. Kunicki-Goldfinger, W. J. H. Życie bakterii. Wyd. Naukowe PWN, Warszawa 2006

	Supplementary literature	1. Jurczak-Kurek A. et al (2016) Biodiversity of bacteriophages: morphological and biological properties of a large group of phages isolated from urban sewage. Sci Rep. 6:34338. doi: 10.1038/srep34338. 2. Jakubowska-Deredas M., Jurczak-Kurek A. et al. (2012) Diversity of tailed phages in Baltic Sea sediment: large number of siphoviruses with extremely long tails. Res Microbiol. 163: 292-296.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. List the elements of the structure of the tailed bacteriophage using the T4 phage as an example 2. What is the mosaic nature of viral genomes due to?	
Work placement	Not applicable	

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