

Subject card

Subject name and code	Bacteriological diagnosis, PG_00147024						
Field of study	Genetics and Experimental Biology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Bachelor'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		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Laboratory of Molecular Evolution and Bioinformatics -> Department of Evolutionary Genetics and Biosystematics -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Agata Jurczak-Kurek				
	Teachers		dr Agata Jurczak-Kurek				
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		2.0		8.0	25
Subject objectives	To learn the principles of work in a bacteriological laboratory. To familiarize students with the methods of isolation and methods of identification of the more important groups of bacteria and the assessment of their drug susceptibility.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GBEL3_W09] principles of safety and hygiene, as well as ergonomics in the workplace.	The student is able to determine the basic principles of safety and hygiene and ergonomics of work in the microbiology laboratory.	[SW1] oral statement/ conversation/discussion
	[GBEL3_U07] Work in a team and organize work while adhering to occupational health and safety principles and ergonomics.	The student can work in a team and organize the work in the microbiology laboratory.	[SU8] observation of student's independent or team work
	[GBEL3_W05] the principles of research planning based on achievements in biological sciences and related fields, the potential application of their results in practice, the principles of operation of equipment and apparatus used in molecular genetics research, and the principle of interpreting biological phenomena and processes based on empirical data in research and practical activities, with consideration for sustainable use of biological diversity.	The student knows the principles of planning research based on the achievements of biological sciences in the field of bacteriological diagnostics and the possibility of using their results in practice, the principles of operation of equipment and apparatus used in bacteriological diagnostic research, and the principle of interpreting biological phenomena and processes based on data empirical data in research work and practical activities.	[SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
	[GBEL3_U03] Proficient in using research equipment and tools, while following the correct sequence of procedures, to conduct basic physical, biological, or chemical observations and measurements in laboratory work within the field of biological sciences.	The student, under the guidance of the supervisor, uses basic apparatus and research tools and, maintaining the correct sequence of operations and sterility of work, performs simple observations and measurements in microbiology laboratory.	[SU8] 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.	The student, under the guidance of the supervisor, is able to independently perform simple practical tasks in bacteriological diagnostics and related fields.	[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.	The student is familiar with the latest trends in bacteriological diagnostics, knows a variety of methods for the isolation and identification of pathogenic bacteria and human physiological microbiota; knows specialized vocabulary (including Latin names of bacteria).	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
	[GBEL3_K08] Responsibility for entrusted equipment/materials and respect for the work of others.	The student is responsible for the laboratory equipment and materials entrusted to him and respects his own work and the work of others.	[SK8] observation of student's independent or team work
	[GBEL3_K07] Lifelong learning and updating knowledge in the field of molecular genetics and other disciplines.	The student understands the need for lifelong learning and updating knowledge and terminology in bacteriological diagnostics and related fields.	[SK1] oral statement/conversation/ discussion
	[GBEL3_K05] Responsibility for the safety of one's own work and others.	The student is responsible for the safety of his own work and that of others when conducting microbiology laboratory experiments.	[SK8] observation of student's independent or team work
	[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 own knowledge as well as methods in the field of bacteriological diagnostics.	[SK1] oral statement/conversation/ discussion
	[GBEL3_K01] The utilization of theoretical knowledge in laboratory and production practice.	The student is able to apply the theoretical knowledge of bacteriological diagnostics in laboratory practice.	[SK6] demonstration of practical skills
	[GBEL3_U09] Plan and pursue one's education autonomously and in a focused manner.	Student is able to plan his/her education and learn in an independent and focused manner. directed.	[SU4] test/exam - oral or written

Subject contents	Principles of health and safety in the microbiology laboratory.Sterilization techniques and principles of aseptics.Techniques of microbial cultures, microbiological media.Methods of determining bacterial susceptibility to antibiotics and bacterial mechanisms of drug resistance.Antibiogram and its interpretation.Differentiation of selected bacteria constituting the physiological microbiota and bacteria pathogenic to humans using microscopic, biochemical, serological and molecular methods.		
Prerequisites and co-requisites	- the student must have completed a course in basic microbiology,- the student, after completing the compulsory subjects in the first year of study, has the knowledge and skills that qualify him/her to participate and pass the course		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final grade based on: - partial grades (tests) (40%) - individual student work (practice) (60%)	51.0%	100.0%
Recommended reading	Basic literature	1. Szweczyk E. M. Diagnostyka bakteriologiczna. Wyd. Naukowe PWN, Warszawa 2020 2. Irving W., Boswell T., Ala'Aldeen D. Mikrobiologia medyczna. Wyd. Naukowe PWN, Warszawa 2012	
	Supplementary literature	1. Salyer A.A., Whitt D.D. Mikrobiologia. Wyd. Naukowe PWN, Warszawa 2005 2. Tille P.M. Bailey & Scott's diagnostic microbiology. Fourteenth edition. Elsevier 2017	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1. What phenotypic methods identify coagulase-negative <i>Staphylococcus</i> species? 2. Which species of pathogenic <i>Enterobacterales</i> show abnormal growth on solid media?		
Work placement	Not applicable		

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