

Subject card

Subject name and code	Biotechnology in medicine - Human pathogens and diagnostics Methodology(M05_B2), PG_00197649						
Field of study	Biotechnology						
Date of commencement of studies	October 2025	Academic year of realisation of subject			2027/2028		
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		
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			4.0		
Learning profile	academic	Assessment form			credit		
Conducting unit	UG Institute of Biotechnology -> Intercollegiate Faculty of Biotechnology UG-MUG -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Mariusz Grinholc				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	0.0	0.0	45
	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	45	10.0	45.0	100		
Subject objectives	The block aims to familiarise students with the basics of laboratory diagnostics as well as the practical dimension of microbiological diagnostics and its limitations and prospects created by modern molecular biology techniques. Students will be introduced to the basic techniques and research tools necessary for microbiological diagnosis with particular emphasis on methods of isolation, selection and identification of microorganisms, and during laboratory classes they will acquire basic skills in the use of selected techniques and organisation of laboratory work.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[BIOTECHL3_W07] The graduate has advanced knowledge of the rules of operation and the possibilities of using research techniques and tools used in biotechnology.		Has knowledge of basic research techniques and tools used in biotechnology		[SW4] test/exam - oral or written		
	[BIOTECHL3_U02] The graduate is able to plan and organise work effectively, independently or as part of a team, in particular work in a laboratory		Effectively plans and organises work independently or as part of a team, in particular laboratory work		[SU4] test/exam - oral or written [SU6] demonstration of practical skills [SU8] observation of student's independent or team work		
	[BIOTECHL3_U01] The graduate possesses practical skills in performing laboratory procedures, documenting results, and applying techniques necessary in biotechnology, including methods of isolation, modification, selection, and analysis of organisms, tissues, cells, and molecules; has the ability to operate advanced laboratory.		Possesses basic skills necessary for laboratory work; can document activities and results; in laboratory work under the guidance of a supervisor applies basic techniques and research tools necessary in biotechnology, with particular emphasis on methods of isolation, modification, selection and analysis of organisms, tissues, cells and molecules; has the ability to operate basic laboratory equipment		[SU4] test/exam - oral or written [SU6] demonstration of practical skills [SU8] observation of student's independent or team work		

Subject contents	M1. Microbiological diagnosis and molecular identification of human diseases associated with pathogen infection (knowledge of techniques used in routine as well as non-routine microbiological diagnosis, i.e. classical microbiology and molecular biology methods used in the diagnosis and epidemiology of nosocomial infections; knowledge of the process of identifying the different groups of microorganisms and the ability to working in sterile conditions and the ability to self-identify microorganisms)		
Prerequisites and co-requisites	Knowledge of the content of Modules 01-04		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Content M1	51.0%	100.0%
Recommended reading	Basic literature	Mikrobiologia - Jadwiga Baj (red. nauk.), Wydawnictwo Naukowe PWN SA, Warszawa 2018. Źródła literaturowe podane w materiałach wykładowych Grinholc M. Microbiological Diagnostics Labs Course Book	
	Supplementary literature	Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Edited by Burtis C.A., Ashwood E.R., Bruns D.E. wyd. Elsevier Saunders Prescotts Microbiology J. M. Willey, L. M. Sherwood, C. J. Woolverton, 8th edition, McGraw-Hill, 2011 Źródła literaturowe dostępne w internetowych bazach danych (PubMed). Bailey & Scott Diagnostic Microbiology (Elsevier, 13th edition, 2014) The cyanobacteria Molecular biology, genomics and evolution Bergeys Manual of systematic Bacteriology Eligia M. Szewczyk. Diagnostyka Mikrobiologiczna (PWN, 2013, wyd. 2) Zdzisław Markiewicz, Zbigniew A. Kwiatkowski. Bakterie, antybiotyki, lekooporność. (PWN, 2018) Piekarowicz A. (2012): Podstawy wirusologii molekularnej	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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