

Subject card

Subject name and code	Biotechnology in medicine - Human pathogens and diagnostics - Fundaments (M05_B2), PG_00196943						
Field of study	Biotechnology						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2028/2029		
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			3.0		
Learning profile	academic	Assessment form			exam		
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	38.0	0.0	0.0	0.0	0.0	38
	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	38		5.0		32.0	75
Subject objectives	Curriculum block is designed to familiarise students with bacterial and viral human pathogens and the molecular aspects of the infections they cause. In addition, it aims to familiarise students with the principles of laboratory diagnostics as well as the practical dimension of microbiological diagnostics and its limitations and prospects offered by modern molecular biology techniques. Students will become familiar with the techniques and research tools necessary for microbiological diagnosis with particular emphasis on methods of isolation, selection and identification of microorganisms.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[BIOTECHL3_W05] The graduate understands at an advanced level the mechanisms of vital function disorders and knows the causes, symptoms and methods of assessing selected disorders and pathological changes in the field of pathophysiology, biochemical disorders, and neoplasia; proposes advanced methods of assessing these disorders in the field of medical biotechnology and molecular diagnostics.		Has knowledge and understanding of selected mechanisms of the formation of disorders of vital functions; knows the causes and symptoms of selected disorders and lesions in the field of pathophysiology, biochemical disorders, tumorigenesis; knows the methods of evaluation of these disorders in the field of medical biotechnology and molecular diagnostics			[SW4] test/exam - oral or written	
	[BIOTECHL3_W07] The graduate has advanced knowledge of the rules of operation and the possibilities of using research techniques and tools used in biotechnology.		The student(s) will gain an advanced understanding of the essential techniques and research tools employed in microbiological diagnostics, encompassing methods for isolating, selecting, and identifying microorganisms.			[SW4] test/exam - oral or written	

Subject contents	<p>F1. Molecular mechanisms of human body infections</p> <p>F2. Laboratory diagnostics</p> <p>F3. Molecular identification of human diseases associated with pathogen infection</p> <p>F4. Diversity of the viral world and the relevance of evolutionary processes in it to human pathology</p>		
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
	Comprehensive integrating examination	50.0%	40.0%
	F1-F4	51.0%	60.0%
Recommended reading	Basic literature	<p>Mikrobiologia - Jadwiga Baj (red. nauk.), Wydawnictwo Naukowe PWN SA, Warszawa 2018.</p> <p>Źródła literaturowe podane w materiałach wykładowych</p> <p>Grinholc M. Microbiological Diagnostics Labs Course Book</p>	
	Supplementary literature	<p>Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Edited by Burtis C.A., Ashwood E.R., Bruns D.E. wyd. Elsevier Saunders</p> <p>Prescotts Microbiology J. M. Willey, L. M. Sherwood, C. J. Woolverton, 8th edition, McGraw-Hill, 2011</p> <p>Źródła literaturowe dostępne w internetowych bazach danych (PubMed).</p> <p>Bailey & Scott Diagnostic Microbiology (Elsevier, 13th edition, 2014)</p> <p>The cyanobacteria Molecular biology, genomics and evolution</p> <p>Bergeys Manual of systematic Bacteriology</p> <p>Eligia M. Szewczyk. Diagnostyka Mikrobiologiczna (PWN, 2013, wyd. 2)</p> <p>Zdzisław Markiewicz, Zbigniew A. Kwiatkowski. Bakterie, antybiotyki, lekooporność. (PWN, 2018)</p> <p>Piekarowicz A. (2012): Podstawy wirusologii molekularnej</p>	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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