University of Gdańsk

Subject card

Subject name and code	Biotechnology in medicine - Human pathogens and diagnostics - Fundaments (M05_B2), PG_00197701		
Field of study	Biotechnology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
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, prof. UG	
	Teachers	dr hab. Mariusz Grinholc, prof. UG dr n. med. Dorota Pomorska dr hab. Magda Rybicka-Misiejko dr hab. Andrea Lipińska	

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 basics 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 basic 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 knows and understands basic mechanisms of the development of disorders vital functions; the causes and symptoms of selected disorders and pathophysiological changes, biochemical disorders, neoplasm; methods of assessing these disorders in the field of medical biotechnology and molecular diagnostics	The student is able to identify the causes and symptoms of specific disorders and infections at the molecular and biochemical level, including in the context of infections and neoplastic processes. They also understand the molecular mechanisms of disorders of vital functions caused by bacterial and viral human pathogens. Additionally, students are familiar with the molecular biology tools and microbiological diagnostic methods used to assess and identify these disorders.	[SW4] test/exam - oral or written
[BIOTECHL3_W07] The graduate knows and understands basic techniques and research tools used in biotechnology.	The student will be familiar with the fundamental procedures and instruments utilized in microbiological diagnostics, such as how to isolate, choose, and identify bacteria.	[SW4] test/exam - oral or written

Subject contents

F1. Molecular basis of human body infections

F2. Fundamentals of laboratory diagnosis

F3. Molecular identification of human diseases associated with pathogen infection

F4. Diversity of the viral world and the relevance of evolutionary processes in it to human pathology

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 F4	0.0%	10.0%
Content F3	0.0%	20.0%
Content F2	0.0%	10.0%
Integrating examination	50.0%	40.0%
Content F1	0.0%	20.0%

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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