

Subject card

Subject name and code	Microscopy - application in biotechnology, PG_00145790						
Field of study	Biotechnology						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	undergraduate studies	Subject group					
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	academic	Assessment form					
Conducting unit	Intercollegiate Faculty of Biotechnology UG-MUG						
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	10.0	14.0	0.0	0.0	24
	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	24		5.0		10.0	39
Subject objectives	The specific objective of the course is to familiarise students with the physical basis of microscope operation, the limitations of microscope applicability and the research capabilities of different types of microscopes						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[BIOTECHL3_W06] The graduate knows and understands basic knowledge in science and natural sciences necessary for understanding the phenomena and biological processes, particular cellular processes at the molecular level		Possesses the basic knowledge of science necessary to understand biological phenomena and processes, in particular cellular processes at the molecular level		[SW4] test/exam - oral or written		
	[BIOTECHL3_W07] The graduate knows and understands basic techniques and research tools used in biotechnology.		Has knowledge of basic research techniques and tools used in biotechnology		[SW4] test/exam - oral or written		
Subject contents	Auditory classes Preparation, fixation and staining of specimens Introduction to light microscopy Contrast techniques in light microscopy Fluorescence microscopy - operation and applications Construction and operation of confocal microscopes Stereoscopic microscopy From whole organisms to single particles - innovative imaging methods in confocal microscopy Laboratory classes Laser microdissection - operation and applications Setting up Kohler illumination Operating a light microscope with camera Interpretation of the microscopic image. Taking measurements. Image acquisition in fluorescence microscopy. Imaging in stereo microscopes Stereoscopic microscopy data processing Three-dimensional imaging - available 'pseudo-confocal' modules System operation for laser microdissection Cariotyping FISH analysis						

Prerequisites and co-requisites	Knowledge of course content: Module 01_B2		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Programme content	0.0%	100.0%
Recommended reading	Basic literature	A. Literature required for final course credit (passing the exam): A.1. used in class A.2. studied independently by the student Materials provided in class by the teacher	
	Supplementary literature	Materials provided in class by the instructor Supplementary literature will be provided during the class.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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