

Subject card

Subject name and code	Biotechnology - The Cell Foundations (M01_B3), PG_00196894						
Field of study	Biotechnology						
Date of commencement of studies	October 2026	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	1	Language of instruction				Polish	
Semester of study	1	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. Stanisław Oldziej				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	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	30	8.0	37.0		75	
Subject objectives	The purpose of the course is to familiarize the student with the structure and functioning of the cell as the basic unit of life. During the course the Student will gain detailed knowledge of the organization of the structure of the prokaryotic cell, the animal eukaryotic cell and the plant and fungal eukaryotic cell. The student will become familiar with the legal regulations related to the work with the biological agent, learn techniques and research tools used in cell biology to observe and analyze the functioning of cells and their components.						
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.		The student knows the legislation related to work with biological agent, knows techniques and research tools used in cell biology to observe and analyze the functioning of cells and their components.			[SW4] test/exam - oral or written	
	[BIOTECHL3_W02] The graduate knows and understands at an advanced level selected processes at the cell, tissue, and organism level, important from the biological point of view		The student knows the structure and functioning of the cell as the basic unit of life. The student has knowledge of the organization of the structure of the prokaryotic cell, the animal eukaryotic cell, and the plant and fungal eukaryotic cell.			[SW4] test/exam - oral or written	

Subject contents	<p>F1. Prokaryotic cell. Morphology and organization of the prokaryotic cell - Division and growth of bacterial cells. Spore forms - Movement and transport. F2. Animal eukaryotic cell -. Organelles - Cell nucleus - Mitochondria - Cell junctions - Cytoskeleton. F3. Plant eukaryotic cell -. Structure and role of vacuoles. - Structure and role of the cell wall. - Totipotency of plant cells. - Structure and function of the cell nucleus. - Structure and function of chloroplasts and mitochondria. F4. Fungal eukaryotic cell -. Structure of the cell</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	F1-F4	51.0%	60.0%
	Comprehensive integrating exam	50.0%	40.0%
Recommended reading	Basic literature	<p>Prokaryotic and fungi cell</p> <p>Mikrobiologia - Jadwiga Baj (red. nauk), Wydawnictwo Naukowe PWN SA, Warszawa 2018. Rozporządzenie Ministra Zdrowia z dnia 22 kwietnia 2005 r w sprawie szkodliwych czynników biologicznych dla zdrowia w środowisku pracy oraz ochrony zdrowia pracowników narażonych na te czynniki (Dz. U. Nr 81 Poz. 716). Mikrobiologia techniczna. T. 1 Mikroorganizmy i środowiska ich występowania (wybrane rozdziały) - Zdzisława Libudzisz (red.), Krystyna Kowal (red.), Zofia Żakowska (red.), 2007, Wydawnictwo Naukowe PWN wybrane rozdziały: Część I: 1-7</p> <p>Eukaryotic animal cell</p> <p>Podstawy biologii komórki (lub nowsze wydanie) autorstwa: Bruce Alberts, Dennis Bray, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter, PWN 2009 Molecular Biology of the Cell. Fifth Edition (lub nowsze wydanie), autorstwa: Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts i Peter Walter, Wydawnictwo Gerland Science 2008. Molecular Cell Biology, Fifth Edition (lub nowsze wydanie), autorstwa: Harvey Lodish, Arnold Berk, Paul Matsudaira, Chris A. Kaiser, Monty Krieger, Matthew P. Scott, Wydawnictwo Freeman, W. H. & Company 2003</p> <p>Eukaryotic plan cell</p> <p>Lack AJ, Evans DE. 2003. Biologia roślin krótkie wykłady. PWN SA, Warszawa. Wojtaszek P, Woźny A, i inni. 2018. Biologia komórki roślinnej, Tom 1, Struktura. Wydawnictwo Naukowe PWN, Warszawa. Wojtaszek P, Woźny A i inni. 2018. Biologia komórki roślinnej, Tom 2, Funkcja. Wydawnictwo Naukowe PWN, Warszawa</p>	
	Supplementary literature	none	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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