

**Subject card**

<b>Subject name and code</b>	Principles of biotechnology - The Cell Foundations (M01_B3), PG_00193180						
<b>Field of study</b>	Biotechnology						
<b>Date of commencement of studies</b>	October 2025	<b>Academic year of realisation of subject</b>			2025/2026		
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>			Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	1	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	1	<b>ECTS credits</b>			2.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			exam		
<b>Conducting unit</b>	UG Institute of Biotechnology -> Intercollegiate Faculty of Biotechnology UG-MUG -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>	dr hab. Stanisław Ołdziej					
	<b>Teachers</b>	dr hab. Stanisław Ołdziej dr n. med. Dorota Pomorska prof. dr hab. Aleksandra Królicka dr hab. Dorota Krzyżanowska dr Anna Ihnatowicz dr Barbara Seroczyńska					
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	26.0	0.0	0.0	0.0	0.0	26
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM		
	<b>Number of study hours</b>	26	5.0	19.0	50		
<b>Subject objectives</b>	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 the basic 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 the basic 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
		0.0%	30.0%
		50.0%	40.0%
		0.0%	15.0%
		0.0%	15.0%
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. &amp; 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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