

**Subject card**

<b>Subject name and code</b>	Cell biology, PG_00203417						
<b>Field of study</b>	Medical Biology						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2026/2027		
<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>			3.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Laboratory of Plant Cytology and Embryology -> Department of Experimental Biology and Plant Biotechnology -> Faculty of Biology -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr Natalia Wiśniewska				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	0.0	30.0	0.0	0.0	30
	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>	30		4.0		41.0	75
<b>Subject objectives</b>	<ol style="list-style-type: none"> <li>1. Understanding the basics of functioning of organisms at the cell level.</li> <li>2. Understanding the structure of prokaryotic and eukaryotic cells.</li> <li>3. Ability to analyze the relationship between the structure of cellular structures and their functions.</li> <li>4. Ability to work safely in the laboratory, plan and conduct experiments using a light microscope, and record and interpret results.</li> </ol>						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BIOLMEDL3_W16] has an advanced knowledge of the experimental methods and the most important techniques of biological sciences that can be applied to medical biology and diagnostics	The graduate explains the theoretical basis of cytobiological methods and lists the most important techniques used in cell biology that may be used in medical biology and diagnostics.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
	[BIOLMEDL3_W03] has an advanced knowledge and understanding of the structure of the animal or human organism, the processes and functional relationships at the cellular, tissue, organ and organismal levels, and explains their relationship to behavior and adaptation of the organism to changing environmental conditions	The graduate understands the importance of individual compartments in the functioning of cells and explains their role in the adaptation of cells to changing environmental conditions or the function performed in a plant or animal body.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
	[BIOLMEDL3_W01] has an advanced knowledge and understanding of the differences in the structure and function of a prokaryotic and eukaryotic cell	The graduate is able to explain the differences in the structure and functioning of prokaryotic and eukaryotic cells; presents the basic features of the structure and functions of plant and animal cells, can recognize cellular components in a microscopic image.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
	[BIOLMEDL3_K07] Is responsible for the equipment/materials entrusted to him and his own work and respects the work of others	The graduate is responsible for the entrusted equipment (light microscopes, permanent specimens) and his/her own work, and respects the work of others.	[SK8] observation of student's independent or team work
[BIOLMEDL3_U01] uses basic apparatus and research tools and, maintaining the correct sequence of operations, performs simple physical, biological or chemical observations and measurements in laboratory work in the biological or medical sciences	The graduate is able to properly use basic equipment and research tools, is able to perform simple observations and measurements in laboratory work in the field of cell biology, and maintains the correct sequence of activities during histochemical staining.	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [SU6] demonstration of practical skills [SU8] observation of student's independent or team work	
Subject contents	Laboratory exercises: 1. Learning the techniques and research methods used in cell biology 2. Structure and function of a plant cell 3. Cell growth and division 4. Cell cycle and its regulation 5. Genetic material of prokaryotic and eukaryotic cells, the impact of numerical and structural aberrations on the functioning of the body. 6. Polyploidization of cells. 5. Programmed cell death, use of PCD in medical therapies.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	accuracy of experiments, documentation of results, correctness interpretation, notebook, preparation of presentation	51.0%	10.0%
	tests	51.0%	90.0%

Recommended reading	Basic literature	<p>A. Literature required to pass the course:A.1. used during classes:</p> <ul style="list-style-type: none"> <li>• Alberts B. i wsp. Podstawy biologii komórki. 2005, PWN Warszawa</li> <li>• Kilarski, W. Strukturalne podstawy biologii komórki. 2003, Wyd. Naukowe PWN</li> <li>• Kłyszajko-Stefanowicz L. Cytobiochemia. 2002, Wyd. Naukowe PWN</li> <li>• Wojtaszek P., Michejda J., Ratajczak, Biologia komórki roślinnej. T. 1 Struktura, T.2 Funkcja.2009, Wyd. Naukowe PWN</li> <li>• Woźny A. i in. [red.] 2001. Podstawy biologii komórki roślinnej, Wyd. Naukowe UAM, Poznań</li> </ul> <p>A.2. studied independently by the student:</p> <ul style="list-style-type: none"> <li>• Rogalska S, J. Małuszyńska, M.J. Olszewska (red.). Podstawy cytogenetyki roślin. 2005, PWN, Warszawa</li> </ul>
	Supplementary literature	<ul style="list-style-type: none"> <li>• Alberts B. (red.), Johnson A, Lewis J, et al. Wstęp do biologii molekularnej. 2002, Książka on-line New York: Garland Science</li> <li>• Boves B.G, Mauseth J.D Plant Structure. 2008, Jones &amp; Bartlett Learning</li> <li>• Litwin JA. Podstawy technik mikroskopowych. Wydawnictwo Uniwersytetu Jagiellońskiego, 1999, Kraków</li> <li>• Mauseth J.D. Botany: An Introduction to Plant Biology. 2016, Jones &amp; Bartlett Learning</li> <li>• Wiśniewska N, Gdaniec A, Kowalkowska AK.2021. Micromorphological, histochemical and ultrastructural analysis of flower secretory structures in two species pollinated by flies (Diptera) of Asclepiadoideae Burnett. South African Journal of Botany 137: 60-67.</li> <li>• Wiśniewska N, Kowalkowska AK, Kozieradzka-Kiszkurno M, Krawczyńska AT, Bohdanowicz J.2018. Floral features of two species of <i>Bulbophyllum</i> section <i>Lepidorhiza</i> Schltr.: <i>B. levanae</i> Ames and <i>B. nymphopolitanum</i> Kraenzl. (Bulbophyllinae Schltr., Orchidaceae). <i>Protoplasma</i> 255: 485-499</li> </ul>
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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