

**Subject card**

<b>Subject name and code</b>	Cell biology, PG_00196789						
<b>Field of study</b>	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>			2.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			exam		
<b>Conducting unit</b>	Faculty of Biology -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		prof. dr hab. Małgorzata Kozieradzka-Kiszkurno				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	<b>Participation in didactic classes included in study plan</b>		<b>Participation in consultation hours</b>		<b>Self-study</b>	<b>SUM</b>
	<b>Number of study hours</b>	30		4.0		16.0	50
<b>Subject objectives</b>	<p>1. Introduction of the basic and most important issues in cell biology</p> <p>2. Overview of cell organelles - structure and functions</p> <p>3. Understanding basic issues regarding the structure and life cycle of a cell (cell division, growth and aging)</p>						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BIOLL3_U02] The graduate is able to make observations individually and in teams, and carry out basic physical, biological and chemical measurements in the field or laboratory	- The graduate can interpret cytological preparations.	[SU1] oral statement/conversation/discussion [SU4] test/exam - oral or written
	[BIOLL3_U01] The graduate is able to use basic apparatus and research tools and follow the correct sequence of operations in laboratory and field work	- The graduate is aware of the use of basic research equipment and tools (light microscopes).	[SU1] oral statement/conversation/discussion [SU4] test/exam - oral or written
	[BIOLL3_W14] The graduate has an advanced understanding of experimental methods and the most important techniques used in the biological sciences	- The graduate explains the theoretical basis of experimental methods used in laboratory classes and lists the most important techniques used in cell biology.	[SW4] test/exam - oral or written
	[BIOLL3_W01] The graduate knows and understands at an advanced level the constituent elements, the differences in the structure and function of prokaryotic and eukaryotic cells	- The graduate characterizes the basic components of a cell and explains the differences in the structure and functioning of prokaryotic and eukaryotic cells.	[SW4] test/exam - oral or written
	[BIOLL3_W03] The graduate knows and understands at an advanced level the structure and functional relationships at the cellular, tissue, organ and organismal levels	- The graduate presents the structure of the cell and functional relationships at the cellular, tissue, organ and organismal levels.	[SW4] test/exam - oral or written
[BIOLL3_K06] The graduate is prepared to take responsibility for the entrusted equipment/materials and for his/her own work and the work of others	- The graduate is aware of responsibility for the entrusted equipment (microscopes) and his/her work and respects the work of others.	[SK8] observation of student's independent or team work	
Subject contents	<ol style="list-style-type: none"> <li>1. Cell evolution</li> <li>2. Biological membranes; transport across membranes</li> <li>3. Extracellular matrix of plant and animal cells</li> <li>4. Cell organelles</li> <li>5. Cytoskeleton</li> <li>6. Cell growth and division</li> <li>7. Aging and cell death</li> </ol>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test	51.0%	100.0%

Recommended reading	Basic literature	<p>Alberts B. i in. 1999. Podstawy biologii komórki. PWN, Warszawa.</p> <p>Alberts B (red), Johnson A, Lewis J et al. Molecular Biology of the Cell. New York: Garland Science 2002</p> <p>Bowes B.G, Mauseth J.D. 2008. Plant Structure. Jones &amp; Bartlett Learning</p> <p>Kurczyńska EU, Borowska-Wykręt D. 2007. Mikroskopia świetlna w badaniach komórki roślinnej. Ćwiczenia, PWN, Warszawa</p> <p>Litwin JA. 1999. Podstawy technik mikroskopowych. Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków</p> <p>Rogalska S, J. Małuszyńska, M.J. Olszewska (red.). 2005. Podstawy cytogenetyki roślin, PWN, Warszawa</p> <p>Wojtaszek P., Michejda J., Ratajczak, Biologia komórki roślinnej. T.1 Struktura, T.2 Funkcja. PWN 2008/2009</p> <p>Woźny A. i in. [red.] 2001. Podstawy biologii komórki roślinnej, Wyd. Naukowe UAM, Poznań</p>
	Supplementary literature	<p>Lack AJ Awans DE. 2003. Krótkie wykłady. Biologia roślin. PWN, Warszawa</p> <p>Kłyszczko-Stefanowicz L. 2002. Cytobiochemia. Biochemia niektórych struktur komórkowych, PWN, Warszawa</p> <p>Mauseth J.D.2016. Botany: An Introduction to Plant Biology, Jones &amp; Bartlett Learning</p> <p>Brzezicka E., Kozieradzka-Kiszkurno M. (2021) Developmental, ultrastructural and cytochemical investigations of the female gametophyte in <i>Sedum rupestre</i> L. (Crassulaceae). <i>Protoplasma</i>, 258(3):529-546.</p> <p>Brzezicka E., Kozieradzka-Kiszkurno M. (2019) Female gametophyte development in <i>Sedum sedifforme</i> (Jacq.) Pau (Crassulaceae): an anatomical, cytochemical and ultrastructural analysis. <i>Protoplasma</i>, 256(2):537-553.</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

Document generated electronically. Does not require a seal or signature.