University of Gdańsk

Subject card

Subject name and code	Cell biology, PG_00196788		
Field of study	Biology		
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	credit
Conducting unit	Laboratory of Plant Cytology and Embryology -> Department of Experimental Biology and Plant Biotechnology -> Faculty of Biology -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Emilia Brzezicka	
	Teachers		

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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	6.0	39.0	75

Subject objectives	
	1. Introduction to basic and most important issues in cell biology 2. Overview of cell organelles structure and functions 3. Understanding the basic concepts related to cell structure and the cell cycle (division, growth, and cell aging)

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 correctly conducts observations of cytological preparations and performs basic biological and chemical measurements in the laboratory, including following instructions. The graduate carries out planned work in the laboratory both individually and as part of a team.	[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
[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 uses basic equipment and research tools (light microscopes) during microscopic analyses and maintains the correct sequence of actions during laboratory work and conducting observations in the field of cell biology.	[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
[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 foundations of experimental, cytobiological methods used in laboratory classes and lists the most important research techniques used in cell biology.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[BIOLL3_W01] The graduate knows and uderstands at an advanced level the constituent elements, the differences in the structure and function of prokaryotic and eukaryotic cells	The graduate describes and identifies organelles during the analysis of microscopic images and 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 [SW2] presentation/project/paper/ report
[BIOLL3_W03] The graduate knows and uderstands at an advanced level the the structure and functional relationships at the cellular, tissue, organ and organismal levels	The graduate presents the structure of a cell, explains the significance of its individual compartments and presents functional relationships at the cellular, tissue, organ, and organismal levels.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
[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 responsible for the entrusted equipment (m.in. light microscope, permanent specimens) and their own work, and respects the work of others.	[SK8] observation of student's independent or team work

Subject contents

- Research techniques and methods used in cell biology
- Structure and function of plant cells
- Cell growth and division
- Cell cycle
- Cell polyploidisation
- Programmed Cell Death

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Method used to conduct experiments and observations, results documentation and interpretation, notes, presentations.	51.0%	10.0%
Tests	51.0%	90.0%

Recommended reading

Basic literature

A . 1 . Literature used during laboratory

- Kurczyńska EU, Borowska-Wykręt D. 2007. Mikroskopia świetlna w badaniach komórki roślinnej. Ćwiczenia, PWN, Warszawa
- Litwin JA. 1999. Podstawy technik mikroskopowych. Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków

A.2. Literature studied by the student individually

- Wojtaszek P., Michejda J., Ratajczak, Biologia komórki roślinnej. T. 1 Struktura , T.2 Funkcja. PWN 2008/2009
- Woźny A. i in. [red.] 2001. Podstawy biologii komórki roślinnej, Wyd. Naukowe UAM, Poznań
- Alberts B. i in. 1999. Podstawy biologii komórki. PWN, Warszawa.
- Kawiak J. i in. 1998. Podstawy cytofizjologii. PWN, Warszawa.

	Supplementary literature	• Bowes B.G, Mauseth J.D. 2008. Plant Structure. Jones & Bartlett Learning • Lack AJ Awans DE. 2003. Krótkie wykłady. Biologia roślin. PWN, Warszawa • Rogalska S, J. Małuszyńska, M.J. Olszewska (red.). 2005. Podstawy cytogenetyki roślin, PWN, Warszawa • Kłyszejko-Stefanowicz L. 2002. Cytobiochemia. Biochemia niektórych struktur komórkowych, PWN, Warszawa • Mauseth J.D.2016. Botany: An Introduction to Plant Biology, Jones & Bartlett Learning • Alberts B. (red), Johnson A, Lewis J et al. Molecular Biology of the Cell. New York: Garland Science 2002 • Brzezicka E., Kozieradzka-Kiszkurno M. (2021) Developmental, ultrastructural and cytochemical investigations of the female gametophyte in *Sedum* rupestre L.(Crassulaceae). Protoplasma, 258(3):529-546. • Brzezicka E., Kozieradzka-Kiszkurno M. (2024). Callose deposition analysis with special emphasis on plasmodesmata ultrastructure during megasporogenesis in *Sedum* (Crassulaceae). *Protoplasma* , *261*(1), 31-41.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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