



Subject card

Subject name and code	Tissue Cultures, PG_00054769						
Field of study	Biotechnology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
Education level	first-cycle studies		Subject group		Optional subject group 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	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Ewa Augustin				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	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	45		3.0		27.0	75
Subject objectives	The aim of the course is to familiarize students with the basic aspects of in vitro culture of plant and animal cells.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_W08		The student understands the basic aspects of in vitro cultivation of plant and animal cells.		[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
	K6_W06		The student knows the structure of plant and animal eukaryotic cells, the basic mechanisms of cell signaling pathways and has the knowledge about nucleic acids.		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	K6_U06		The student is able to set up plant and animal culutre in vitro. The student is able to subculture cells, conduct nucleic acid electrophoresis, and determine the biological activity of biologically active substances.		[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment		

Subject contents	Course content – lecture Types of in vitro cultures.		
	Secondary metabolites.		
	Establishing in vitro plant and animal breeding.		
	Stem cells and their use.		
	Determination of biological activity of chemotherapeutic agents.		
	Plant and animal tissues.		
	Isolation of DNA and chlorophyll from plant cells.		
	Basic immunocytochemical techniques.		
Prerequisites and co-requisites	Knowledge of cell biology, biochemistry, general biotechnology.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	laboratory	60.0%	40.0%
	lecture	60.0%	60.0%
Recommended reading	Basic literature	1. S. Malepszy. Plant biotechnology. PWN 2001. 2. S. Stokłosowa. Cell and tissue culture. PWN 2004. 3. E. Augustin. Selected aspects of plant and animal cell culture. Group work. Gdańsk, 2010.	
	Supplementary literature	1. B. Alberts et al. Fundamentals of cell biology. Introduction to molecular biology. PWN 1999, 2005. 2. W. Sawicki. Histology. PZWL Medical Publishing House 2000. 3. R.I. Freshney. Culture of animal cells. 5th edition. Wiley-Liss, 2005.	
	eResources addresses		
	Example issues/ example questions/ tasks being completed	List the types of in vitro plant cultures. Methods of obtaining plant secondary metabolites. How to start an in vitro culture of animal cells? Basic composition of in vitro plant and animal culture media. List the methods of determining the biological activity of chemotherapeutic agents.	
Practical activities within the subject	Not applicable		