GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Tissue Cultures, PG_00054769		
Field of study	Biotechnology		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
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		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Ewa Augustin	
	Teachers	dr hab. Ewa Augustin dr inż. Monika Pawłowska dr inż. Agnieszka Potęga mgr inż. Agnieszka Kurdyn	

Lesson types and methods of instruction

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.	[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.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
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.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge

Subject contents	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
lecture	60.0%	60.0%
laboratory	60.0%	40.0%

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	Adresy na platformie eNauczanie: Kultury tkankowe wykład 2023/2024 - Moodle ID: 36309 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36309 Kultury tkankowe wykład 2023/2024 - Moodle ID: 36309 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36309

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.
Work placement	Not applicable