



Subject card

Subject name and code	DIPLOMA LABORATORY I, PG_00063482						
Field of study	Biotechnology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	second-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	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		2.0		
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 inż. Natalia Maciejewska				
	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						
	eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=7483						
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		5.0		15.0	50
Subject objectives	The aim of the course is to prepare students for the independent planning and implementation of experimental research related to their diploma thesis. Students develop skills in selecting appropriate research methods, conducting experiments, analysing and interpreting results, and drawing conclusions based on current scientific knowledge. The course also develops skills in maintaining research documentation, critically evaluating the limitations of applied methods, and conducting research in accordance with laboratory safety, bioethical principles, and intellectual property protection.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W06] recognizes the technological and scientific, as well as organizational and economic opportunities and limitations in biotechnology and related fields	knows the capabilities and limitations of the applied research methods and is able to take technical, organisational, and economic constraints into account when planning and conducting research.	[SW1] Assessment of factual knowledge
	[K7_K01] understands the need to constantly update knowledge based on the state of the art in accordance with the latest scientific literature, improve professional skills and the importance of teamwork	is ready to independently updates knowledge based on current scientific literature, develops skills related to research work, and cooperates with members of the laboratory team.	[SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice
	[K7_U04] predicts the interaction of biomolecules and biologically active compounds on living organisms and the course of processes involving them based on knowledge in biology, biotechnology and related fields and computer methods of data analysis, modeling and simulation	is able to analyse and interpret research results concerning the effects of biomolecules or biologically active compounds on the investigated biological system and to formulate conclusions based on the obtained data and current scientific knowledge.	[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
	[K7_W07] has the skills to design experiments with respect to the protection of intellectual property and the principles of bioethics and applicable legislation	has the necessary knowledge to plan and carry out experiments related to the topic of the thesis, taking into account bioethical principles, laboratory safety, intellectual property protection, and applicable regulations.	[SW1] Assessment of factual knowledge
Subject contents	Course content – laboratory • Introduction to the diploma thesis topic, current state of knowledge, and relevant scientific literature. • Formulation of the research aim, hypotheses, and experimental plan. • Selection of research methods appropriate to the scientific problem, including consideration of their capabilities and limitations. • Preparation and conduct of experiments according to the research plan and in accordance with good laboratory practice, safety, and bioethical principles. • Maintenance of laboratory documentation and systematic collection of experimental data. • Processing, analysis, and interpretation of results using appropriate quantitative and qualitative methods. • Critical evaluation of results, identification of sources of error and methodological limitations, and planning of subsequent research stages. • Comparison of experimental findings with current scientific literature and formulation of conclusions. • Presentation and discussion of research results and preparation of materials forming the basis of the experimental part of the diploma thesis.		
Prerequisites and co-requisites	Students should have basic knowledge of cell biology, molecular biology, biochemistry, and biotechnology, as well as a general understanding of the principles of biological experiment design and data analysis. Knowledge of laboratory procedures, including aseptic technique, laboratory documentation, and occupational health and safety regulations, is required. The ability to use scientific literature in English and basic familiarity with research methods relevant to the diploma thesis topic are recommended.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Pass	60.0%	100.0%
Recommended reading	Basic literature	• Alberts B. i wsp., <i>Molecular Biology of the Cell</i>, Garland Science. • Freshney R.I., <i>Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications</i>, Wiley-Blackwell. • Sittampalam G.S. i wsp. (red.), <i>Assay Guidance Manual</i>, Eli Lilly & Company and the National Center for Advancing Translational Sciences.	
	Supplementary literature	Current original and review articles related to the diploma thesis topic, published in journals indexed in the Journal Citation Reports (JCR).	
	eResources addresses		
Example issues/ example questions/ tasks being completed	• Formulate the research aim and hypothesis for the diploma thesis topic and propose an appropriate experimental plan. • Select research methods appropriate to the scientific problem and justify their use, taking into account their capabilities and limitations. • Design appropriate control groups, experimental conditions, and measures ensuring experimental reproducibility. • Conduct the planned experiments in accordance with good laboratory practice, safety, and bioethical principles, and document the experimental procedures. • Process the experimental data, apply appropriate analytical methods, and present the results in a clear graphical or tabular form. • Interpret the results in relation to the research hypothesis and current scientific literature. • Identify potential sources of error and methodological limitations, and propose possible modifications or further research steps. • Prepare a short presentation of the results and discuss their significance in the context of the diploma thesis.		

Practical activities within the subject	Not applicable
---	----------------

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