



Subject card

Subject name and code	DIPLOMA LABORATORY I, PG_00070146						
Field of study	InfoBioChem						
Date of commencement of studies	February 2027		Academic year of realisation of subject		2027/2028		
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	1		Language of instruction		Polish		
Semester of study	2		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 hab. inż. Marek Wojciechowski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	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		0.0		5.0	50
Subject objectives	The course aims to develop the ability to independently plan and carry out the computational part of a diploma thesis using bioinformatics and computational modelling methods, in particular machine learning, molecular docking and molecular dynamics. The student selects methods and tools appropriate to the research question, prepares and runs computations, critically assesses their reliability and limitations, and interprets results in the context of biological and chemical knowledge. The course also develops the ability to document, justify and present research decisions and to plan further work.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K03] is ready to formulate questions precisely to deepen one's understanding of a topic or identify missing elements of reasoning		is aware of how to formulate research questions and problems requiring clarification with precision, identifies gaps in reasoning, and justifies the choice of subsequent analyses or calculations.		[SK3] Assessment of ability to organize work		
	[K7_U08] is able to critically analyze the results obtained in experimental work.		is able to critically analyses computational and simulation results and assesses their reliability, limitations, and consistency with the assumptions and available knowledge.		[SU2] Assessment of ability to analyse information		
	[K7_U09] can plan and conduct experiments related to their field of study, including measurements and computer simulations, as well as interpret the obtained results and draw conclusions.		plans and performs computations or simulations appropriate to the diploma thesis problem, including analyses using machine learning, molecular docking, or molecular dynamics, then interprets the results and draws conclusions.		[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		
	[K7_K05] is ready for continuous learning, developing interdisciplinary knowledge, and updating their skills in a dynamically changing scientific and professional environment.		is prepared to independently extend their knowledge and develop the skills required for the diploma thesis, including learning new computational methods and tools and critically assessing their suitability for the research problem.		[SK2] Assessment of progress of work		

Subject contents	Course content – laboratory The scope is tailored to each individual diploma thesis. It includes refining the research question and analysis plan; reviewing literature and selecting data, methods and tools; preparing data and the computational environment; performing and documenting computations using machine learning, molecular docking and/or molecular dynamics as appropriate to the topic; quality control and assessment of limitations and reproducibility; analysis, visualisation and interpretation of results; drawing conclusions; preparing thesis materials and presenting progress. Each student works on a distinct research question under individual supervision.		
Prerequisites and co-requisites	Basic knowledge of molecular biology, biochemistry and quantitative methods, and the ability to use a computer. Familiarity with the basic concepts relevant to the diploma thesis topic is expected; specific computational methods and tools will be selected and developed during the laboratory.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Completion and documentation of laboratory tasks, quality and reproducibility of analyses, critical interpretation of results, and justification of conclusions.	60.0%	100.0%
Recommended reading	Basic literature	Scientific literature and documentation for methods and tools selected individually for the diploma thesis topic and planned analyses, as recommended by the course instructor.	
	Supplementary literature	Current research articles relevant to the student's research question and documentation for the databases, libraries and computational packages used. Selected references depend on the thesis topic.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Formulating a research question and justifying the method; preparing data for analysis; planning and performing computations or simulations; assessing result quality and limitations; interpreting findings and proposing follow-up analyses; presenting progress and conclusions.		
Practical activities within the subject	Not applicable		

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