



Subject card

Subject name and code	PROGRAMMING IN BIOINFORMATICS, PG_00063492						
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 Specialty 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 hab. inż. Marek Wojciechowski				
	Teachers		dr hab. inż. Marek Wojciechowski				
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 addresses: Moodle ID: 7016 PROGRAMOWANIE W BIOINFORMATYCE https://enauczanie.pg.edu.pl/2025/course/view.php?id=7016						
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 purpose of this laboratory is to teach students solving various bioinformatics problems by writing short scripts in python programming language. Students learn the basics of Python language itself, but also get familiar with modules dedicated for solving advanced bioinformatics tasks.As part of the course, students also learn to consciously use modern AI tools in their tasks.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W04] selects methods of data analysis, including bioinformatics, statistical and molecular modeling, useful for solving technological and scientific problems in biotechnology and related fields		is aware of how to select the appropriate libraries and algorithms for solving a specific problem in the field of bioinformatics		[SW3] Assessment of knowledge contained in written work and projects		
	[K7_U05] proposes solutions to technological and scientific problems in biotechnology and related fields using experimental methods and bioinformatics, statistics and specialized databases		is able, based on selected algorithms and specified databases, prepare a script that fully automates the solution to the given bioinformatics problem.		[SU1] Assessment of task fulfilment		
	[K7_U08] prepares documentation of experiments and technological processes using professional terminology in biotechnology and related fields		is able to create documentation detailing the individual stages of solving the entire task assigned to him and present the obtained results.		[SU5] Assessment of ability to present the results of task		
Subject contents	Course content – laboratory - basics of python programming language - basics of numpy and matplotlib modules - usage of biopython library						
Prerequisites and co-requisites	Basic knowledge of Python programming after a first-semester course.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	ocena projektu praktycznego	60.0%	100.0%
Recommended reading	Basic literature	• Essential Bioinformatics, Jin Xiong, 2006, Cambridge University Press • Learning Python, 3rd Edition, Mark Lutz, 2007, O'Reilly Media	
	Supplementary literature	Dive into python, http://www.diveintopython.net/	
	eResources addresses		
Example issues/ example questions/ tasks being completed	• Preparation of a script that automatically analyzes the structure of a given protein and presents the results in a concise form, both text and graphic • Preparation of a script automatically querring both structural and sequential databases and carrying out an automated comparative analysis between structures and sequences of protein		
Practical activites within the subject	Not applicable		

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