



Subject card

Subject name and code	Bioinformatics, PG_00039035						
Field of study	Biotechnology						
Date of commencement of studies	February 2022	Academic year of realisation of subject				2021/2022	
Education level	second-cycle studies	Subject group				Obligatory subject group in the field of study 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	1	ECTS credits				1.0	
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. inż. Marek Wojciechowski				
	Teachers		dr hab. inż. Marek Wojciechowski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	0.0	0.0	15
	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	15		3.0		7.0	25
Subject objectives	The aim of this course is familiarizing students with databases and advanced bioinformatics tools. Students get acquainted with important aspects of working with local and remote databases and learn how to effectively use sequence and structural protein databases, how to form advanced database queries and write computer programs helpful in effective usage of the tools.						
Learning outcomes	Course outcome	Subject outcome				Method of verification	
	K7_K04	student is able to solve problems and perform tasks independently; can independently formulate questions for solving a given problem or task; is able to plan a larger task by subdividing it into sub-tasks and preparing the appropriate schedule				[SK5] Assessment of ability to solve problems that arise in practice	
	K7_U06	student is able to apply statistical methods, IT solutions, and in particular bioinformatic methods for designing experiments, analysis of experimental results and solving problems in the field of biotechnology. Student knows how to use biological databases.				[SU1] Assessment of task fulfilment	
	K7_W03	Student has in-depth knowledge of the biotechnological applications of microorganisms designed using bioinformatic tools.				[SW3] Assessment of knowledge contained in written work and projects	
	K7_W07	student has deep and extended knowledge about the applications of computer science in biotechnology				[SW3] Assessment of knowledge contained in written work and projects	
Subject contents	Working with remote system. Making use of sequence and structure data bases. Protein sequence analysis. Basics of Python programming. Using Python and Biopython for solving particular bioinformatics problems.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	practical exercise		60.0%		100.0%		

Recommended reading	Basic literature	Bioinformatics and Molecular Evolution; Teresa Attwood , Paul G. Higgs; Blackwell Science Ltd 2005 Python for Bioinformatics, Sebastian Bassi, CRC Press, 2010
	Supplementary literature	BIOINFORMATICS, ed. Paul H. Dear, SCION Publishing Ltd, 2007
	eResources addresses	
Example issues/ example questions/ tasks being completed	<p>- analysis of the potential function of the protein based on its primary structure</p> <p>- preparation of a script that formulates queries to appropriate bioinformatic databases in order to perform thorough analyzes of a specific protein</p>	
Work placement	Not applicable	