



## Subject card

Subject name and code	Implementation of the project "RADIUM", PG_00056523						
Field of study	Biotechnology						
Date of commencement of studies	February 2022	Academic year of realisation of subject				2022/2023	
Education level	second-cycle studies	Subject group					
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				5.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Chemistry, Technology and Biochemistry of Food -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Edyta Malinowska-Pańczyk				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	90.0	0.0	0.0	105
	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	105		0.0		0.0	105
Subject objectives	The aim of the course is the implementation of the project entitled "Development of a quick method for the determination of the number of microorganisms in human milk"						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_U11	Student selects appropriate techniques for the determination of selected milk components. Analyzes the obtained results and assesses the quality of the tested material in the context of its nutritional value, biological activity and microbiological safety.			[SU3] Assessment of ability to use knowledge gained from the subject		
	K7_W10	The student is able to plan an experiment and perform it correctly. He understands the importance of repeating experiments in obtaining reliable results. He is able to interpret the obtained results.			[SW3] Assessment of knowledge contained in written work and projects		
	K7_K02	The student is able to critically evaluate his knowledge. Seeks answers to questions that bother him. Uses modern techniques to expand and deepen knowledge.			[SK5] Assessment of ability to solve problems that arise in practice		
	K7_U09	The student is able to correctly perform the experiment and conduct a critical analysis of the obtained results. The student knows and applies the methods of statistical analysis of results.			[SU4] Assessment of ability to use methods and tools		
	K7_W12	The student knows the methods of physicochemical and microbiological analysis of human milk. The student understands the principles of determination in the used methods.			[SW3] Assessment of knowledge contained in written work and projects		
Subject contents	Modern, fast methods of determining the presence and number of microorganisms in food products. Bioluminescent method for the determination of the number of microorganisms in human milk. Colorimetric methods as quick methods for determining the degree of microbiological contamination of breast milk. Ez-Fluo is a modern system for the determination of the number of microorganisms in human milk.						
Prerequisites and co-requisites	Knowledge of microbiological analysis of food. Completed Food Microbiology course.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	laboratory	60.0%	60.0%
	lecture	60.0%	40.0%
Recommended reading	Basic literature	Scientific publications on research topics from the last 20 years.	
	Supplementary literature	Scientific publications on research topics from the last 20 years.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Quantitative and qualitative composition of human milk microbiota.		
Work placement	Not applicable		