



Subject card

Subject name and code	Cancer cell biology, PG_00053381						
Field of study	Biomedical Engineering, Biomedical Engineering, Biomedical Engineering						
Date of commencement of studies	February 2022	Academic year of realisation of subject				2022/2023	
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				3.0	
Learning profile	general academic profile	Assessment form				exam	
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Ewa Augustin				
	Teachers		dr hab. Ewa Augustin				
Lesson type and method of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	15.0	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	3.0	27.0	75		
Subject objectives	The aim of the course is to teach students with the molecular mechanisms of the carcinogenesis.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_U05] can plan and conduct experiments related to the field of study, including computer simulations and measurements; interpret obtained results and draw conclusions	The student knows the basic methods of studying the biology of cancer cells.			[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[K7_K01] is ready to create and develop models of proper behaviour in the work and life environment; undertake initiatives; critically evaluate actions of their own, teams and organisations they are part of; lead a group and take responsibility for its actions; responsibly perform professional roles taking into account changing social needs, including: n - developing the achievements of the profession, n- observing and developing rules of professional ethics and acting to comply to these rules	The student is able to use the acquired knowledge in future work and environment, applying the principles of professional ethics.			[SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice [SK1] Assessment of group work skills		
	[K7_W53] Knows and understands, to an increased extent, selected aspects of biomedical diagnostics.	The student knows the basic mechanisms of carcinogenesis and has knowledge about current anti-cancer therapies.			[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>Cancer development phases.</p> <p>Factors causing cancer, epidemiology of cancer in Poland and in the world.</p> <p>Oncogenes and suppressor genes.</p> <p>Metastasis and angiogenesis. Telomeres and telomerase. Disorders of cell cycle control.</p> <p>Cell death. Cellular senescence.</p> <p>Cancer stem cells.</p> <p>Cancer biomarkers.</p>														
Prerequisites and co-requisites	Knowledge in the field of cell biology, biochemistry, molecular biology.														
Assessment methods and criteria	<table border="1" data-bbox="448 456 1477 595"> <thead> <tr> <th data-bbox="448 456 794 490">Subject passing criteria</th> <th data-bbox="794 456 1141 490">Passing threshold</th> <th data-bbox="1141 456 1477 490">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 490 794 524">laboratory</td> <td data-bbox="794 490 1141 524">60.0%</td> <td data-bbox="1141 490 1477 524">25.0%</td> </tr> <tr> <td data-bbox="448 524 794 557">seminar</td> <td data-bbox="794 524 1141 557">60.0%</td> <td data-bbox="1141 524 1477 557">25.0%</td> </tr> <tr> <td data-bbox="448 557 794 595">lecture</td> <td data-bbox="794 557 1141 595">60.0%</td> <td data-bbox="1141 557 1477 595">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	laboratory	60.0%	25.0%	seminar	60.0%	25.0%	lecture	60.0%	50.0%
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Example issues/ example questions/ tasks being completed	<p>Lecture:</p> <p>The role of oncogenes and suppressor genes in cancer transformation.</p> <p>Molecular basis of angiogenesis.</p> <p>Telomerase as a target for anti-cancer therapy.</p> <p>Seminars:</p> <p>Cancer and evolution.</p> <p>Cancer family trees.</p> <p>Cancer in the nano network.</p> <p>Cancerous blood vessels.</p> <p>New Ways to Cancer. treatment.</p> <p>Laboratories: General principles of neoplastic cell culture.</p> <p>Apoptotic cell morphology.</p> <p>Study of changes in the cell cycle following treatment with chemotherapeutic agents.</p>														
Work placement	Not applicable														