

Subject card

Subject name and code	Human genetic disorders, PG_00154686						
Field of study	Medical Biology						
Date of commencement of studies	October 2025		Academic year of realisation of subject			2026/2027	
Education level	Master's studies		Subject group			Obligatory subject group in the field of study Optional subject group	
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			1.0	
Learning profile	academic		Assessment form			credit	
Conducting unit	Laboratory of Human Genomics and Genetics -> Department of Medical Biology and Genetics -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Joanna Jakóbkiewicz-Banecka, prof. UG				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	0.0	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	1. Familiarization with the molecular basis of exemplary hereditary and cancerous diseases, and with the main directions in the treatment of genetically determined diseases. 2. Understanding examples of single-gene and multi-gene diseases in clinical, molecular, and diagnostic aspects. 3. Acquaintance with the structure of human chromosomes, with particular emphasis on genes whose mutations are responsible for the occurrence of genetic diseases. 4. Understanding and characterizing phenomena such as lyonization and its disorders, and Y chromosome degeneration.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BIOLMEDMU2_U02] is able to plan and conduct experiments and measurements based on advanced research techniques and tools, is able to interpret the obtained results and draw conclusions	Is capable of planning and conducting experiments and measurements using advanced techniques and research tools, and can interpret the obtained results and draw conclusions.	[SU4] test/exam - oral or written
	[BIOLMEDMU2_U06] knows and applies English-language specialized vocabulary of biological and medical sciences in daily professional/scientific activities	Knows and uses English specialized vocabulary in the fields of biological and medical sciences in daily professional/scientific activities.	[SU4] test/exam - oral or written
	[BIOLMEDMU2_K07] is ready to formulate opinions on various aspects of professional activities	Is prepared to formulate opinions on various aspects of professional activity.	[SK4] test/exam - oral or written
	[BIOLMEDMU2_K02] is ready to recognize the importance of knowledge in solving cognitive and practical problems and to seek expert advice when having difficulty solving a problem on his own	Recognizes the importance of knowledge in solving cognitive and practical problems and seeks expert opinions when encountering difficulties in solving the problem independently.	[SK4] test/exam - oral or written
	[BIOLMEDMU2_W01] has an in-depth knowledge of scientific fields and disciplines relevant to medical biology and the studied specialty and knows their main development trends	Possesses in-depth knowledge in fields and scientific disciplines relevant to medical biology and the studied specialty, and is aware of their main developmental trends.	[SW4] test/exam - oral or written
	[BIOLMEDMU2_W02] is oriented to the currently debated problems in medical biology and related disciplines	Is well-versed in currently discussed issues concerning medical biology and related disciplines.	[SW4] test/exam - oral or written
	[BIOLMEDMU2_K01] is ready to critically evaluate himself, the teams in which he works and the content he receives	Is prepared to critically evaluate oneself, the teams in which they work, and the content they receive.	[SK1] oral statement/conversation/discussion [SK4] test/exam - oral or written
	[BIOLMEDMU2_U01] can proficiently, but critically, use the scientific literature and databases necessary in the activities of medical biology and related disciplines	Is proficient in using scientific literature and databases necessary for activities in the field of medical biology and related disciplines, but does so in a critical manner.	[SU4] test/exam - oral or written
	[BIOLMEDMU2_W04] knows the principles of planning research based on the achievements of biological and medical sciences, the principles of operation of equipment and apparatus used in medical biology research, and the principle of interpreting biological phenomena and processes based on empirical data in research work and practical activities	Is familiar with the principles of research planning based on the achievements of biological and medical sciences, the functioning principles of equipment and apparatus used in medical biology research, and the principles of interpreting biological phenomena and processes based on empirical data in research work and practical activities.	[SW4] test/exam - oral or written
Subject contents	1. The process of Lyonization and its disorders, sex-linked diseases. 2. Degeneration of the Y chromosome and its consequences, genes on the Y chromosome, and associated diseases. 3. Structure of the human karyotype - characterization of individual chromosomes. 4. Comprehensive overview of single-gene diseases - genetic basis, symptoms, treatment.		
Prerequisites and co-requisites	Basics of Human Genetics - knowledge of the specifics of the human genome and the methods used in human genetics; understanding the basics of genetic disorders. Human Genetics - knowledge about deviations from monogenic inheritance; understanding factors that complicate inheritance patterns; ability to identify the application of genetic methods in practice.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test exam	51.0%	100.0%
Recommended reading	Basic literature	J.M Friedman, F.J.Dill, M.R. Hayden, B.C. McGillivray: Genetyka. (red. wyd. pol. J. Limon), Urban & Partner Genetyka medyczna, L.B. Jorde, J.C. Carey, M.J. Bamshad., red. M. Borowiec, Edra Urban & Partner, 202 J.M. Connor, M.A. Ferguson-Smith: Podstawy genetyki medycznej. PZWL	

	Supplementary literature	EPIGENETYKA, John C. Lucchesi, PWN, 2021 GENETYKA MEDYCZNA I MOLEKULARNA, Jerzy Bal, PWN, 2017 GENETYKA MEDYCZNA, Bogdan Kałużewski , Casey Carey , Lynn Jorde , Michael J. Bamshad, Edra Urban & Partner, 2013 GENETYKA MEDYCZNA, Edward Tobias, PZWL, 2014
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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