University of Gdańsk

Subject card

Subject name and code	Basics of human genetics, PG_00203431						
Field of study	Medical Biology						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2028/2029			
Education level	Bachelor's 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	3		Language of instruction	Polish			
Semester of study	5		ECTS credits	2.0			
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 Anna Kloska				
	Teachers						
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						
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		8.0	12.0	50	
Subject objectives	To familiarize students with the inheritance of genetic diseases and the principles of genetic counseling. Understanding disorders of inheritance patterns of Mendelian traits; familiarization with the use of variability genetic in individual identification. In terms of skills: teaching how to describe human mutations genome, genetic risk estimation and interpretation of results enabling prognosis increased risk of genetically determined diseases. Familiarization with the methods conducting genetic tests using molecular techniques.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BIOLMEDL3_W06] at an advanced level: describes, explains and compares systemic control mechanisms in animal and human organisms (including onto- and phylogenetic points of view) and the neurobiological and genetic basis of different disorders	the graduate describes, explains, and compares systemic control mechanisms in humans and the genetic basis of their disorders; and explains the mechanism of human genetic diseases	[SW4] test/exam - oral or written
	[BIOLMEDL3_W05] has an advanced knowledge of the structure, properties and functions of human cells, tissues and organs; human physiological and biochemical processes and mechanisms of disease pathophysiology	the graduate knows and understands the mechanisms of the pathophysiology of genetic diseases	[SW4] test/exam - oral or written
	[BIOLMEDL3_W02] has an advanced knowledge and understanding of the structure and properties of basic types of biological macromolecules, molecular mechanisms of the pathways of basal metabolism and flow of genetic information, and sources of variation in organisms; explains the rules of inheritance	the graduate describes the laws of inheritance concerning human genetics	[SW4] test/exam - oral or written
	[BIOLMEDL3_K07] Is responsible for the equipment/materials entrusted to him and his own work and respects the work of others	The graduate is responsible for the entrusted laboratory equipment/materials and his/her work and respects the work of others	[SK8] observation of student's independent or team work
	[BIOLMEDL3_K01] understands the need for lifelong learning and to update his/her knowledge of medical biology and related disciplines	the graduate understands the need for lifelong learning and updating knowledge in the field of human genetics; understands the obligation of continuous self-education, broadening and deepening theoretical skills and practical and introducing new achievements in the field of human genetics into professional practice	[SK4] test/exam - oral or written [SK5] implementation of a problem task
	[BIOLMEDL3_U05] synthesises data from different sources and draws appropriate conclusions from them	the graduate synthesizes data on human genetics from various sources and draws appropriate conclusions on this basis; using information about genetic diseases contained in professional databases	[SU4] test/exam - oral or written [SU5] implementation of a problem task
	[BIOLMEDL3_U01] uses basic apparatus and research tools and, maintaining the correct sequence of operations, performs simple physical, biological or chemical observations and measurements in laboratory work in the biological or medical sciences	the graduate uses basic research equipment and tools and, maintaining the correct sequence of activities, performs simple observations and measurements in laboratory work in the field of human genetics; and can estimate the risk of genetic diseases in offspring based on family predispositions and the influence of environmental factors	[SU4] test/exam - oral or written [SU8] observation of student's independent or team work

Subject contents	Nomenclature of mutations in the human genomeMapping human genes by linkage analysisClinical genetics - family history, principles of preparing a pedigreeBasics of calculating the risk of a genetic diseaseForensic genetics - genetic identification of individuals, kinship testing and paternity determinationGenetic research as a method for tracing the history of human populations (mtDNA)Genetic identification of variants in the CCR5 geneOnline databases used in human genetics
Prerequisites and co-requisites	Basic knowledge of the genetics of organisms.

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test 1	50.0%	35.0%
	lab report	50.0%	10.0%
	lab test	50.0%	20.0%
	test 2	50.0%	35.0%
Recommended reading	Basic literature	M.J. Bamshad, J.C. Carey, L.B. Jorde; Genetyka medyczna, Edra Urban & Partner, Wrocław 2021J.M Friedman, F.J.Dill, M.R. Hayden, B.C. McGillivray: Genetyka. (red. wyd. pol. J. Limon), Urban & Partner, Wrocław 2000Drewa G., Ferenc T.; Genetyka medyczna; Edra Urban & Partner Wydawnictwo, Wrocław 2011Bruce R. Korf. Genetyka człowieka. Rozwiązywanie problemów medycznych. Wydawnictwo Naukowe PWN, 2003	
	Supplementary literature	J. Bal (red.) Biologia molekularna w medycynie. Elementy genetyki klinicznej. Wydawnictwo Naukowe PWN, Warszawa 2011, wyd. 3	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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