University of Gdańsk

Subject card

Subject name and code	Basics of human genetics, PG_00203342						
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	exam			
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	15.0	0.0	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		2.0		33.0	50
Subject objectives	To familiarize students with the role of genetic factors in the etiopathogenesis of diseases and the principles of pre- and postnatal genetic counseling. Students' knowledge and understanding of disorders of the inheritance pattern of Mendelian traits. Familiarization with the issues of epigenetic control of gene expression, characteristics of the role of genetic polymorphism and polygenic inheritance.						

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_U05] synthesises data from different sources and draws appropriate conclusions from them	the graduate synthesizes 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
[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 in professional practice	[SK4] test/exam - oral or written

Subject contents

Human chromosomal mutations. The most common genetic syndromes caused by chromosomal mutations.
Disturbances in the inheritance pattern of Mendelian traits.
Epigenetic control of gene expression.
Genetic polymorphism.
Mitochondrial diseases.
Polygenic inheritance.
Prenatal and preimplantation diagnosis.
Teratogenesis and mutagenesis.
Genetic counseling.

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
exam	50.0%	100.0%

Recommended reading	Basic literature	M.J. Bamshad, J.C. Carey, L.B. Jorde; Genetyka medyczna (red. M. Borowiec), Edra Urban & Partner, Wrocław 2021. J.M Friedman, F.J.Dill, M.R. Hayden, B.C. McGillivray: Genetyka. (red. wyd. pol. J. Limon), Urban & Partner, Wrocław 2000. Drewa G., Ferenc T.; Genetyka medyczna; Edra Urban & Partner Wydawnictwo, Wrocław 2011. Bruce R. Korf. Genetyka człowieka. Rozwiązywanie problemów medycznych. Wydawnictwo Naukowe PWN, 2003.
	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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