University of Gdańsk

Subject card

Subject name and code	Basics of human genetics, PG_00147016		
Field of study	Genetics and Experimental Biology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study
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	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	dr Marcelina Malinowska prof. dr hab. Magdalena Gabig-Cimińska dr Anna Kloska	

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

eNauczanie source addresses:
Moodle ID: 11076 Podstawy genetyki człowieka - ćwiczenia 2026
https://mdl.ug.edu.pl/course/view.php?id=11076

Additional information:

Case study
Problem solving
Conducting experiments

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	3.0	17.0	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 genetic variations in individual identification. In terms of skills: teaching how to describe mutations in the human genome, estimate genetic risk and interpret results enabling prediction of an increased risk of genetically determined diseases. Familiarization with methods of conducting genetic determinations using molecular techniques.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GBEL3_K08] Responsibility for entrusted equipment/materials and respect for the work of others.	the graduate is responsible for the entrusted equipment/materials, his work, and respects the work of others	[SK8] observation of student's independent or team work
[GBEL3_W03] The molecular mechanisms of genetic information transmission and gene expression, as well as the molecular and genetic basis of human physiology and diseases, including infectious diseases.	the graduate explains the mechanisms of human genetic diseases	[SW4] test/exam - oral or written
[GBEL3_U03] Proficient in using research equipment and tools, while following the correct sequence of procedures, to conduct basic physical, biological, or chemical observations and measurements in laboratory work within the field of biological sciences.	the graduate applies the basic research equipment and tools used in human genetics and maintains and performs the correct sequence of activities and simple experiments using them	[SU8] observation of student's independent or team work
[GBEL3_K06] Integrity and honesty in scientific and professional work.	The graduate understands the need for honesty and reliability in performing research field of human genetics	[SK4] test/exam - oral or written [SK8] observation of student's independent or team work
[GBEL3_W01] Understanding the structure and properties of basic types of biological macromolecules, molecular mechanisms of metabolic pathways and genetic information flow, as well as sources of genetic variability in organisms and mechanisms of evolution; explaining the rules of inheritance, elucidating differences in the structure and functioning of prokaryotic and eukaryotic cells, and understanding the structure and functional relationships at the cellular and tissue levels.	the graduate describes the laws of inheritance in human genetics	[SW4] test/exam - oral or written
[GBEL3_K07] Lifelong learning and updating knowledge in the field of molecular genetics and other disciplines.	the graduate understands the need to update knowledge in the field of human genetics	[SK4] test/exam - oral or written
[GBEL3_U01] Independently perform practical tasks in the field of biological sciences and related disciplines, formulate research problems, analyze their results, and draw conclusions.	the graduate can perform simple practical tasks in the field of genetics human	[SU4] test/exam - oral or written [SU5] implementation of a problem task

Subject contents

Nomenclature of mutations in the human genome
Mapping human genes by linkage analysis
Clinical genetics - family history, principles of preparing a pedigree
Basics of calculating the risk of a genetic disease
Forensic genetics - genetic identification of individuals, kinship testing and paternity determination
Genetic research as a method for tracing the history of human populations (mtDNA)
Genetic identification of variants in the CCR5 gene
Online 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	51.0%	35.0%
lab test	51.0%	20.0%
lab report	51.0%	10.0%
test 2	51.0%	35.0%

Recommended reading	Basic literature	M.J. Bamshad, J.C. Carey, L.B. Jorde; Genetyka medyczna, 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	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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