University of Gdańsk

Subject card

Subject name and code	The Basics of Human Genetics, PG_00154456						
Field of study	Biology						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
Education level	undergraduate 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	3		Language of instruction	Polish			
Semester of study	6		ECTS credits	1.0			
Learning profile	academic		Assessment form				
Conducting unit	Pracownia Genomiki i Genetyki Człowieka -> Katedra Biologii i Genetyki Medycznej -> Faculty of Biology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Joanna Jakóbkiewicz-Banecka					
	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	8.0	25

Subject objectives	1. Introduction of new concepts in human genetics. 2. Understanding and comprehension of inheritance pattern disorders in Mendelian traits. 3. Familiarization with the issue of epigenetic control of gene expression. 4. Introduction to the methodology of prenatal and preimplantation diagnostics. 5. Understanding the role of molecular diagnostics in assessing the risk of genetically determined diseases. 6. Understanding the role of human genome research in forensics and forensic medicine.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLL3_W10] The graduate is familiar with the development and current state of knowledge and the latest trends in biology, as well as their relationship with other natural disciplines	The graduate recognizes the dynamic development of biological sciences in areas such as genomics and personalized medicine based on genetic knowledge.	[SW4] test/exam - oral or written
[BIOLL3_W14] The graduate knows the theoretical basis of experimental methods and the most important techniques of the biological sciences	The graduate has knowledge of currently discussed issues related to bioethics and the application of biological advancements in molecular disease diagnostics.	[SW4] test/exam - oral or written
[BIOLL3_U03] The graduate, under the guidance of a mentor, is able to carry out simple tasks or research expertise typical of the biological sciences	The graduate solves tasks in the field of human genetics and, under the guidance of a supervisor, conducts experiments based on the analysis of the human genome.	[SU4] test/exam - oral or written
[BIOLL3_U12] The graduates will be able to use Polish and foreign languages specific to biology in a way that is understandable and accessible to both specialists and non-specialists	The graduate proficiently uses scientific literature and terminology in the field of human genetics.	[SU4] test/exam - oral or written
[BIOLL3_W02] The graduate knows the structure and properties of biological macromolecules, the molecular mechanisms of basal metabolic pathways and genetic information flow and the sources of variation in organisms; the rules of inheritance	The graduate understands the complex phenomena and processes related to human inheritance.	[SW4] test/exam - oral or written
[BIOLL3_K02] The graduate is prepared to critically self-assess their own competences and to update and improve their knowledge and skills	The graduate analyzes knowledge in the field of human genetics and is able to identify its practical applications.	[SK4] test/exam - oral or written

Subject contents

1. Human genome
2. Inheritance of Mendelian traits
3. Genetic polymorphism
4. Mitochondrial diseases
5. Multigenic inheritance
6. Genetic disease diagnostics application of molecular methods in the diagnosis of genetically determined diseases
7. Molecular diagnostics in forensic medicine and criminology
8. Genetic counseling

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test	51.0%	100.0%

Recommended reading

Basic literature	1. Jorde LB, Carey JC, Bamshad MJ, Genetyka medyczna, red. wyd. polskiego Maciej Borowiec, wydanie 6, Edra Urban&Partner, 2021.2. Genetyka medyczna i molekularna, red. J. Bal, Warszawa, Wydawnictwo Naukowe PWN, 2017.3. Tobias E. S., Connor M., Ferguson-Smith M., Genetyka medyczna, red. wyd. pol. A. Latos-Bieleńska, Warszawa, PZWL Wydawnictwo Lekarskie, 2013.4. Lucchesi JC. Epigenetyka. PWN, Warszawa, 2022.5. Drewa G, Ferenc T. Genetyka medyczna, Wrocław, 2011.
Supplementary literature	1. Fletcher H, Hickey I, Krótkie wykłady: Genetyka, PZWL 2021.2. Węgleński P. Genetyka molekularna, wydanie VI, PWN, 2020.3. Genetyka kliniczna nowotworów, red. J. Lubiński, Szczecin, Print Group, 2018.4. Medycyna personalizowana, red. A. Fronczak, Warszawa, Oficyna Wydawnicza Warszawskiego Uniwersytetu Medycznego, 2016.5. Brown T. A., Genomy, Warszawa, Wydawnictwo Naukowe PWN, 2019.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

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