University of Gdańsk

Subject card

Subject name and code	Essential Genetics, PG_00148373		
Field of study	Medical Biology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	undergraduate 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	1	Language of instruction	Polish polish
Semester of study	1	ECTS credits	2.0
Learning profile	academic	Assessment form	
Conducting unit	Katedra Genetyki Ewolucyjnej i Biosystematyki -> Faculty of Biology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Anna Wysocka	
	Teachers		

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	20.0	0.0	0.0	20
	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	20	5.0	25.0	50

Subject objectives	
	To familiarize students with the basic issues of genetics, in accordance with the current state of knowledge in this field. Deepening knowledge and understanding of the basic laws of heredity and the basis of genetic variation. To provide knowledge on the mechanisms of gene functioning and interaction, understanding the relationship between genotype and phenotype. Presentation of modern research methods and development of the ability to ask questions, make assessments and solve uncomplicated problems.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLMEDL3_U05] synthesises data from different sources and draws appropriate conclusions from them	synthesise data from different sources and draw on this basis the appropriate conclusions	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU4] test/exam - oral or written [SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
[BIOLMEDL3_W02] describes 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	describes the mechanisms and sources of variability of organisms; explains the rules of inheritance	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work [SW5] implementation of a problem task
[BIOLMEDL3_K05] jest odpowiedzialny za bezpieczeństwo pracy własnej i innych oraz potrafi rozpoznać sytuacje zagrożenia i podjąć odpowiednie działania	is responsible for the safety of his/ her own and others' work and is able to identify emergency situations and take appropriate action	[SK8] observation of student's independent or team work
[BIOLMEDL3_W06] 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	knows the genetic basis of disorders (traits) in animal and plant organisms	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work [SW5] 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	preserves the correct sequence of activities in experiments, performs simple observations, applies basic statistical methods and techniques and IT tools for the description of phenomena and analysis of biological data	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU4] test/exam - oral or written [SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
[BIOLMEDL3_W16] explains the theoretical basis of experimental methods and lists the most important techniques of biological sciences that can be applied to medical biology and diagnostics	explains the theoretical basis of experimental methods and lists the most important genetic techniques that can be used in biology medical and diagnostic	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work [SW5] implementation of a problem task
[BIOLMEDL3_U06] reads with understanding scientific texts in Polish and simple texts in English in the field of medical biology; independently searches and uses available sources of information, including electronic sources	can read and understand scientific texts in Polish and simple texts in English in the field of genetics; independently searches for and uses available sources of information, including electronic	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU4] test/exam - oral or written [SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work

Subject contents	Introduction to classical genetics: Mendel's first and second laws, analysis of pedigrees; allelic and non-allelic gene interaction; lethal genes. Lineage of the genes. Sex-linked, sex-influenced, and sex-limited inheritance. Genetics of quantitative traits. Analysis of the genetic structure of the population. Genetic equilibrium of populaton.
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
activity and participation on discussions	51.0%	5.0%
experiment report	51.0%	25.0%
final tests	51.0%	60.0%
written or oral entrance tests	51.0%	10.0%

Recommended reading

Basic literature	Boczkowski K. Outline of medical genetics. PZWL Warsaw, 1990. Brooker R. (ed.) Genetics: Analysis and Principles, 6-th edition. Mc Graw Hill. 2017. Charon K. M., Świtoński M. Animal genetics. PWN Warsaw, 2006. Charon K. M., Świtoński M. Genetics and genomics of animals. PWN Warsaw, 2019. Krebs J.E., Goldstein E.S.,. Kilpatrick S.T. Lewin's GENES XII. Jones & Bartlett Learning; 12th Edition. 2017. Piątkowska B., Goc A., Dąbrowska G. A collection of tasks and questions in genetics, vol. I General genetics. NCU Publishing House, Toruń, 1998. Węgleński P.: Molecular genetics. PWN Warsaw, 2012
Supplementary literature	Korf B. R. Human genetics. Solving medical problems. PWN Warsaw, 2003.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	1. Explain the terms: gender-related and gender-conjugated traits. 2. The distance between gene A and B is 4 cM, and between genes B and C is 9 cM. Calculate what is the percentage chance of a double crossing-over occurring.
Work placement	Not applicable

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