

Subject card

Subject name and code	Genetics, PG_00207410						
Field of study	Biology						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2027/2028		
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	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		3.0		
Learning profile	academic		Assessment form		exam		
Conducting unit	Faculty of Biology -> Rector						
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	30.0	0.0	0.0	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		2.0		43.0	75
Subject objectives	Familiarizing with the basic and current genetic issues						
	Broadening the knowledge/understanding of the laws of heredity and the genetic variation.						
	Providing knowledge on the gene function/interaction, understanding the relationship: genotype-phenotype						
	Developing the ability to analyse pedigrees and determine the probability of inheriting genes						
	Familiarizing with methods of analysing the population genetic structure and factors disturbing the population balance						
	Presentation of research methods and development of the ability to ask questions, make assessments, solve uncomplicated genetic problems						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BIOLL3_W03] knows and understands at an advanced level the principles of life functioning at the level of populations, biocenoses and ecosystems, the determinants of biological diversity as well as the mechanisms and molecular basis of the evolution of organisms		
	[BIOLL3_W02] knows and understands at an advanced level the structure and properties of biological macromolecules, mechanisms of metabolism, flow of genetic information, sources of variation in organisms; rules of inheritance	knows and understands the mechanisms of genetic information flow and the sources of organisms variability, explains the rules of inheritance	[SW4] test/exam - oral or written
	[BIOLL3_U04] is able to carry out simple research tasks or give expert opinions typical for the biological sciences under the supervision of a scientific supervisor		
	[BIOLL3_U02] is able to use statistical methods, IT tools and data analysis techniques to describe biological phenomena, as well as synthesize information from various sources and formulate correct conclusions based on them		
	[BIOLL3_K05] is ready to perform professional roles responsibly, both individually and in teams, including organizing the work of small teams and taking joint responsibility for the implementation of assigned tasks and the results achieved.		
Subject contents	Mendelian inheritance with examples in plants, animals and humans. Inheritance inconsistent with Mendel's rules. Basic properties genes (e.g. gene penetrance, trait expressivity, pleiotropy, modification, genetic anticipation). Multiple alleles. Gene interaction allelic and non-allelic. Lethal genes. Sex-linked, sex-influenced, and sex-limited inheritance. Genetic lineage. Methods of genetic mapping. Inheritance of quantitative traits. Multifactorial inheritance. Behavioural genetics. Issues of mutagenesis. Epigenetics. Genetic basis of ontogeny of multicellular organisms. Structure of genomes. Extranuclear inheritance in Eucaryota. Genetic structure of the population. Genetic equilibrium. Factors influencing allele frequency in populations.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final test	51.0%	100.0%
Recommended reading	Basic literature <		

	Supplementary literature	Korf B. R. Human genetics. Solving medical problems. PWN Warsaw, 2003. Plomin R., Defries J.C., Mc Cleam G.E., McGuffin P. Genetics of behavior. PWN Warszawa, 2001 Wysocka A., Lipowska M., Kilikowska A. 2010. Genetics in solving dyslexia puzzles: the overview. Acta Neuropsychologica, 8(4): 315-331 Wysocka A., Lipowska M. 2010. Genetic basis of the co-occurrence of ADHD and developmental dyslexia. Psychiatry and Clinical Psychology, 10 (3): 188-193
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. Point out the wrong sentence: a. in complete dominance, the dominant allele manifests itself phenotypically in heterozygote b. in incomplete dominance, the heterozygote manifests an intermediate trait value between the phenotypes of both homozygotes c. codominance is a type of allelic gene interaction d. in incomplete dominance, heterozygotes always manifest a dominant trait 2. Karyotype 47, XYY is an example: a. monosomy c. euploidy b. polyploidy d. aneuploidy	
Work placement	Not applicable	

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