

Subject card

Subject name and code	Genetics, PG_00154405						
Field of study	Biology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
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		credit		
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	0.0	0.0	30.0	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		6.0		39.0	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_W05] The graduate knows the rules and describe the mechanisms of life at the population, biocenosis and ecosystem levels and the temporal and spatial determinants of biodiversity	explains the basic rules and describes the mechanisms of genetic diversity at the population level and the temporal and spatial determinants of biodiversity	[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
	[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	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 [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report [SW3] text preparation/written work [SW5] implementation of a problem task
	[BIOLL3_U09] The graduate will be able to prepare well-documented written work on selected biological problems	prepare well-documented reports in writing on the experiments carried out	[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
	[BIOLL3_U05] The graduate will be able to synthesise data from a variety of sources and draw appropriate conclusions	synthesizes information about modern research methods in genetics and draws adequate conclusions on this basis	[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
	[BIOLL3_U04] The graduate will be able to apply statistical methods and computer algorithms and techniques to the description of phenomena and the analysis of biological data	uses basic statistical methods to analyse the results of the investigations in the experiments	[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
	[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	under the supervision, is able to perform simple research tasks in the field of general genetics	[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
	[BIOLL3_K04] The graduate is ready to take responsibility for their own work and to follow the rules of teamwork and responsibility for shared tasks	awareness of responsibility for one's own work and readiness to comply with the rules of teamwork and take responsibility for jointly implemented tasks	[SK8] observation of student's independent or team work

Subject contents	Introduction to classical genetics: Mendel's first and second laws. Pedigree analysis. Allelic and non-allelic interaction of genes. Lethal genes. Chromosomal theory of heredity: genetic lineage. Sex-linked, sex-influenced, and sex-limited inheritance. Genetics of quantitative traits. Analysis the genetic structure of the population. Genetic equilibrium of the population.		
Prerequisites and co-requisites	Brak		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final tests	51.0%	60.0%
	experiment report	51.0%	25.0%
	activity in class and participation in discussions	51.0%	5.0%
	written or oral subtests	51.0%	10.0%
Recommended reading	Basic literature	Bal J. Molecular biology in medicine Elements of clinical genetics. PWN Warsaw, 2011. 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		
Example issues/ example questions/ tasks being completed	1. Explain the terms: gender-related traits and gender-conjugated traits. 2. The distance between genes 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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