University of Gdańsk

Subject card

Subject name and code	General genetics with elements of conservation genetics, PG_00198080		
Field of study	Natural Resources Conservation		
Date of commencement of studies	October 2026	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	1	Language of instruction	Polish
Semester of study	1	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Faculty of Biology -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Agnieszka Kaczmarczyk-Ziemba	
	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	3.0	17.0	50

Subject objectives

Familiarization with the laws of heredity, mechanisms of gene functioning/cooperation, relationship of the genotype-phenotype. Familiarization with methods of determining the genetic structure, population potential and the impact of genetic variation on its level. Indication of genetic targets in the management of natural populations and in conservation activities. Presentation of modern research methods and development of the ability to ask questions, make assessments and solve uncomplicated genetic problems.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OZPL3_W02] The graduate possesses advanced knowledge and understanding of the mechanisms governing the flow of genetic information, its regulation, the principles of inheritance, and the origins of variation in organisms	describes the mechanisms of the flow of genetic information, explains the rules of inheritance and the sources of variability of organisms	[SW4] test/exam - oral or written
[OZPL3_K08] The graduate is ready to systematically update his/her natural knowledge and to apply it in practice	systematically updates natural knowledge and knows its practical applications	[SK8] observation of student's independent or team work
[OZPL3_U04] The graduate is able to plan and carry out simple research tasks in the biological sciences under the guidance of a supervisor	performs simple research tasks in the field of general genetics and conservation	[SU4] test/exam - oral or written
[OZPL3_K01] The graduate is ready to recognise the limitations in his/her own knowledge and understands the need for continuous learning and development	knows the limitations of their own knowledge and understands the need for continuous learning and development	[SK8] observation of student's independent or team work

Subject contents	Mendelian inheritance with examples in plants, animals and humans. Inheritance inconsistent with Mendel's rules. Basic properties genes (penetrance, expressivity, pleiotropy, modification). Interaction of allelic and non-allelic genes. Lethal genes. Gender coupling. Recombination of genetic material; gene coupling. Multifactorial inheritance. Population genetic polymorphism and influencing factors changes in the frequency of alleles in populations. Genetic structure of the population.Genetic equalibrum. The relationship between loss of genetic variation and extinction. Genetic, demographic and environmental factors in biodiversity conservation. Gene flow between populations. Genetics and the future of endangered species. Units of protection: evolutionarily significant and management units. Reintroductions.
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	Allendorf F.W., Luikart G. 2007. Conservation and the Genetics of Populations, Blackwell Publishing, Oxford, UKPurvis A., Gittleman J.L., Brooks T. (eds). 2005. Phylogeny and Conservation, Cambridge University Press, Cambridge, UK.Brooker R. (ed.) Genetics: Analysis and Principles, 6-th edition. Mc Graw Hill. 2017Charon K. M., Świtoński M. Animal genetics. PWN Warsaw, 2006.Charon K. M., Świtoński M. Genetics and genomics of animals. PWN Warsaw, 2019Piątkowska B., Goc A., Dąbrowska G. A collection of tasks and questions in genetics, vol. I General genetics. NCU Publishing House, Toruń 1998.
Supplementary literature	Gajewski W. General and molecular genetics. PWN Warsaw, 1987.Korf B. R. Human genetics. Solving medical problems. PWN Warsaw, 2003.Krebs J.E., Goldstein E.S.,. Kilpatrick S.T. Lewin's GENES XII . Jones & Bartlett Learning; 12th Edition. 2017.Węgleński P.: Molecular genetics. PWN Warsaw, 2012.
eResources addresses	

Example issues/ example questions/ tasks being completed	1. The basic structural unit of DNA is:a. nucleosomeb. nucleotidec. SNPD. histon,2. Knowing that the incidence of phenylketonuria (recessive homozygotes) is 0.0001, and assuming that the locus responsible for phenylketonuria is in the Hardy-Weinberg equilibrium, indicate how many carriers should be statistically expected in a group of 50 individuals.a. 0.5 c. 1b. 2 d. less than 0.5
Work placement	Not applicable

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