

Subject card

Subject name and code	Basics of population and conservation genetics, PG_00146891						
Field of study	Genetics and Experimental Biology						
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	2	ECTS credits			1.0		
Learning profile	academic	Assessment form			credit		
Conducting unit	Department of Evolutionary Genetics and Biosystematics -> 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	0.0	15.0	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		3.0		7.0	25
Subject objectives	<ol style="list-style-type: none"> 1. To introduce students to the basic issues of population and conservation genetics. 2. To introduce students to the importance of genetic diversity for the health of populations and species. 3. To introduce methods for analysing genetic variation and determining genetic structure. 4. To indicate genetic goals in natural population management and conservation efforts. 						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GBEL3_W02] A graduate has an advanced knowledge and understanding of: knowledge of mathematics, physics and chemistry to the extent necessary for understanding biological phenomena and processes and their application in research methodology.	Student has knowledge of the use of statistical methods and information technology tools in the field related to the studied course.	[SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
	[GBEL3_W01] A graduate has an advanced knowledge and understanding of: the structure and properties of the main types of biological macromolecules; the molecular mechanisms of basic metabolic pathways and genetic information flow; the sources of genetic variation in organisms and the mechanisms of evolution. They can explain the principles of inheritance, the differences in structure and function between prokaryotic and eukaryotic cells, as well as the structure and functional relationships at the cellular and tissue levels.	Student describes the mechanisms of flow of genetic information and regulation of its expression, explains the rules of inheritance and the sources of variation in organisms.	[SW1] oral statement/ conversation/discussion
	[GBEL3_U02] The graduate is able to: use computer programmes for analysis and calculation, and use databases and bioinformatics tools to solve biological problems.	Student applies basic statistical methods and bioinformatics techniques and tools to describe phenomena and analyse biological data.	[SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[GBEL3_U01] The graduate is able to: independently perform practical tasks in the biological and related sciences, formulate research problems, analyse their results and draw conclusions.	Student, under the guidance of the supervisor, plans and carries out simple research tasks in the field of conservation genetics.	[SU2] presentation/project/paper/report [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[GBEL3_K07] The graduate is prepared to: lifelong learning and updating of knowledge in molecular genetics and other fields.	Student knows the limitations of his/her own knowledge and understands the need for continuous learning and development.	[SK1] oral statement/conversation/discussion [SK8] observation of student's independent or team work
	[GBEL3_K01] The graduate is prepared to: use of theoretical knowledge in laboratory and production practice	Student is ready to apply theoretical knowledge in practice laboratory and in the design of conservation efforts.	[SK5] implementation of a problem task [SK8] observation of student's independent or team work
Subject contents	Population genetic structure. Genetic equilibrium. Evolution in populations: natural selection. Methodology in applied genetics in conservation efforts. Genetic variability: measures, significance in time and space. Genetic, demographic and environmental factors in biodiversity conservation. Effects of population reduction. Inbreeding depression. Population fragmentation, Gene flow between populations. Causes of species extinction. Relationship between loss of genetic variation and extinction. Genetics and the future of endangered species. Conservation units: evolutionary significant and management units. Reintroductions.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	homework	51.0%	15.0%
	short tests	51.0%	70.0%
	presentation	51.0%	15.0%

Recommended reading	Basic literature	<p>Used in class:</p> <ul style="list-style-type: none"> Charon K.M., Świtoński M. Genetyka i genomika zwierząt. PWN Warszawa, 2019. Fletcher H., Hickey I., Winter P. Krótkie wykłady Genetyka. PWN Warszawa, 2019. Douda K., Sell J., Kubíková-Peláková L., Horký P., Kaczmarczyk A., Mioduchowska M. 2014. Host compatibility as a critical factor in management unit recognition: population-level differences in mussel-fish relationships. <i>Journal of Applied Ecology</i>, 51(4): 1085-1095. <p>Studied by the student:</p> <ul style="list-style-type: none"> Scientific publications selected by the teacher and made available to students.
	Supplementary literature	Hartl D.L., Clark A.G. Podstawy genetyki populacyjnej. Wydawnictwo Uniwersytetu Warszawskiego, Warszawa 2010 Frankham R., Ballou J.D., Briscoe D.A. Introduction to conservation genetics. Cambridge University Press, Cambridge, 2010
	eResources addresses	
Example issues/ example questions/ tasks being completed	Presentation on conservation efforts involving populations of the noble crayfish inhabiting Pomeranian rivers.	
Work placement	Not applicable	

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