

**Subject card**

<b>Subject name and code</b>	Genes and Populations in Time and Space, PG_00156401						
<b>Field of study</b>	Bioinformatics						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2028/2029		
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>			Optional subject group Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	3	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	5	<b>ECTS credits</b>			3.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Laboratory of Molecular Evolution and Bioinformatics -> Department of Evolutionary Genetics and Biosystematics -> Faculty of Biology -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr Aleksandra Naczka				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	0.0	30.0	0.0	0.0	30
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	30		0.0		45.0	75
<b>Subject objectives</b>	Understand the basics of heritable and non-heritable variation, methods of describing it and the effects of various evolutionary factors shaping genetic equilibrium in populations, over time and space.						
<b>Learning outcomes</b>	<b>Course outcome</b>	<b>Subject outcome</b>			<b>Method of verification</b>		
	[BIOINL3_W04] Has advanced knowledge of research techniques and tools used in bioinformatics	Identifies evolutionary processes affecting patterns of genetic variation in natural populations.  Understands the causes of variation in trait frequency in natural populations.  Understands the distributions of genetic variation of local populations over space.			[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/report [SW3] text preparation/written work		
[BIOINL3_U02] Graduate is able to apply knowledge of natural sciences and science to formulate, analyze and solve problems related to bioinformatics	Be able to calculate and analyse parameters of genetic variation in plant and animal populations using formulas and computer programs. Can apply knowledge of genetic variation in plant and animal populations to formulate and solve bioinformatics problems.			[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report [SU3] text preparation/written work			



Example issues/ example questions/ tasks being completed	Using the ARLEQUIN programme, the frequency of haplotypes will be estimated, neutrality tests will be performed, and the degree of genetic variation based on F statistics and AMOVA molecular variance analysis will be determined.  Search for regions influenced by natural selection. Assessment of effective population size.
Work placement	Not applicable

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