

Subject card

Subject name and code	Genetics of marine organisms - lecture, PG_00054217						
Field of study	Oceanography						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	postgraduate studies	Subject group			Obligatory subject group 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					
Conducting unit	Katedra Funkcjonowania Ekosystemów Morskich -> Faculty of Oceanography and Geography						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Rafał Lasota				
	Teachers		dr Rafał Lasota				
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		5.0		25.0	60
Subject objectives	Insight into current research in the field of broadly understood genetics of marine organisms. Application of genetics in other fields of knowledge (including marine ecology, aquaculture, protection of biodiversity and living marine resources).						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[OCEANMU2-K04] is ready to critically evaluate his/her knowledge and received content in the field of natural sciences in particular in the field of the studied specialty, a in problematic situations, supports oneself with knowledge experts		Is ready to critically assess the knowledge acquired and the content received in the field of genetics of marine organisms, particularly within the scope of the studied specialization, and in problematic situations, relies on the knowledge of experts.			[SK4] test/exam - oral or written	
	[OCEANMU2-W02] knows and understands complex processes and phenomena occurring in the marine environment, with particular emphasis on the coastal zone, as well as complex relationships between living and non-living elements of the aquatic environment		Knows and understands to an in-depth degree the course of complex genetic processes and phenomena occurring in the marine environment and the coastal zone, as well as the intricate relationships between living and non-living components of the aquatic environment in the context of the genetics of marine organisms.			[SW4] test/exam - oral or written	

Subject contents	<p>Methods used in research on the genetics of marine organisms and their proper selection in solving scientific problems (molecular techniques, basic statistical and bioinformatic tools).</p> <p>Genetic diversity of natural populations and the main random and directional processes that shape it.</p> <p>Phylogeography of marine organisms.</p> <p>Occurrence and identification of cryptic species in the marine environment.</p> <p>Genetic processes associated with biological invasions (founder effect, genetic drift, adaptation to new environmental conditions), identification of source populations and migration routes. Cryptic invasions.</p> <p>Historical and contemporary processes determining the genetic structure of organisms in the Baltic Sea.</p> <p>Application of genetic methods in mariculture (improving the quality of productive traits). Interactions between farmed and natural populations in the context of changes in their genetic structure.</p> <p>Genetic changes in marine organisms caused by environmental pollution (impact on the genetic constitution of populations, gene and chromosomal mutations, genetic diseases, cancers).</p> <p>Application of genetic methods in the conservation and management of marine living resources (species identification and their distribution, determination of migration directions and intensity, protection of biodiversity at the genetic level, genetic resources).</p> <p>Introduction to marine metagenomics.</p>								
Prerequisites and co-requisites	Knowledge of the fundamentals of molecular genetics and population genetics. Knowledge of English at an intermediate level.								
Assessment methods and criteria	<table border="1" data-bbox="448 1084 1487 1155"> <thead> <tr> <th data-bbox="448 1084 794 1122">Subject passing criteria</th> <th data-bbox="794 1084 1141 1122">Passing threshold</th> <th data-bbox="1141 1084 1487 1122">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 1122 794 1155">exam</td> <td data-bbox="794 1122 1141 1155">51.0%</td> <td data-bbox="1141 1122 1487 1155">100.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	exam	51.0%	100.0%
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exam	51.0%	100.0%							
Recommended reading	Basic literature	Charon K. M., Świtoński M. Genetyka i genomika zwierząt, Wyd. PWN, Warszawa, 2021 Brown A.C. Genomy. Wyd. PWN, Warszawa, 2019 Kartavtsev Y. Molecular Evolution and Population Genetics for Marine Biologists. CRC Press, 2015 Krzanowska H., Łomnicki A. (red.). Zarys mechanizmów ewolucji. Wyd. PWN, Warszawa, 2002							
	Supplementary literature	Beaumont A.R., K. Hoare. Biotechnology and Genetics in Fisheries and Aquaculture. Wiley-Blackwell, 2003 Freeland J.R. Ekologia molekularna. Wyd. PWN, Warszawa, 2008							
	eResources addresses	Adresy na platformie eNauczanie:							
Example issues/ example questions/ tasks being completed									
Work placement	Not applicable								

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