

Subject card

Subject name and code	Application of molecular tools in marine research, PG_00117742						
Field of study	Oceanography						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study Optional subject group 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		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Laboratory of Aquaculture -> Department of Marine Biology and Biotechnology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Konrad Ocalewicz				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	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		2.0		15.0	32
Subject objectives	1: introduction of basic concepts in molecular biology. 2: familiarizing the student with modern molecular biology techniques. 3: familiarizing the student with the possibilities of using molecular biology techniques in the study of marine organisms. 4: the student acquires practical skills in basic molecular biology methods and operation of laboratory equipment.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[OCEANMU2-U04] is ready to develop in an analytical and synthetic way research and analysis results and based on them creating conclusions	Student is able to analytically and synthetically prepare the results of genetic tests and molecular analyzes and conduct correct ones based on them inference	[SU2] presentation/project/paper/report
	[OCEANMU2-U02] can use scientific terminology fluently and appropriately in presenting and discussing problems in the field of oceanography	Student can use scientific terminology fluently and appropriately presenting and discussing problems in the field of biology and diagnostics molecular in the context of marine research	[SU1] oral statement/conversation/discussion
	[OCEANMU2-K03] is ready to effectively organize his/her own work, is active and persistent and punctuality in completing tasks, is ready to carrying out evaluation of their own activities	Student is ready to effectively organize his/her own work regarding marine organisms and performed using molecular tools, is active and characterized by perseverance and punctuality in implementation tasks, is self-critical and draws conclusions based on self-analysis	[SK8] observation of student's independent or team work
	[OCEANMU2-W04] knows and understands the latest research trends in the field of oceanography as well as the possibilities of practical application of scientific achievements	Student knows and understands in-depth the latest research trends the scope of practical use of molecular tools in marine research as well as the possibilities of practical application of scientific achievements.	[SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report
	[OCEANMU2-K01] is ready to plan, implement and supervise, individually or collectively, next stages of the entrusted task, is ready to take responsibility for its results, cooperates effectively in the team and performs its functions in it various functions, including managerial ones	Student is ready to plan, implement and supervise, individually or in a team, subsequent stages of the assigned task implemented using molecular biology tools, he feels responsibility for its results, cooperates effectively in the team and plays a role in it various functions, including managerial ones	[SK8] observation of student's independent or team work
Subject contents	A1: DNA isolation from tissue fragments of marine organisms: fin, scale, soft tissue. A2: Amplification of the 5S rDNA/SdY/microsatellite DNA region using PCR. A3: Agarose gel electrophoresis of the PCR product/ isolated DNA. A4. Presentation of the obtained results.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final paper and discussion	51.0%	100.0%
Recommended reading	Basic literature	Ronnegren Anna Lewandowska, Laboratory techniques in molecular biology. 2018 Jerzy Bał, Molecular biology in medicine, Wydawnictwo Naukowe PWN 2008	
	Supplementary literature	Piotr Węgleński, Molecular Genetics, PWN Scientific Publishing House, 2008 Brown TA, Genomes, PWN Scientific Publishing House, 2009	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Application of PCR technique in molecular diagnostics		
Work placement	Not applicable		

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