University of Gdańsk

Subject card

Subject name and code	Application of Molecular Tools in Marine Research - laboratory, PG_00204937		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
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	1.0	9.0	25

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.

<table>
<tr><td>Learning outcomes</td><td>
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<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[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;</td><td>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</td><td>[SK8] observation of student's independent or team work</td></tr>
<tr><td>[OCEANMU2-U02] is able to fluently and accurately use scientific terminology when presenting and discussing oceanographic issues, and to propose and justify innovative solutions</td><td>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</td><td>[SU1] oral statement/conversation/ discussion</td></tr>
<tr><td>[OCEANMU2-W04] has an in-depth understanding of the latest research trends in oceanography, as well as the possibilities for practical application of related achievements; evaluates their usefulness and limitations in solving scientific research problems, and critically analyzes and assesses their applicability</td><td>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.</td><td>[SW1] oral statement/ conversation/discussion
[SW2] presentation/project/paper/ report</td></tr>
<tr><td>[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</td><td>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</td><td>[SK8] observation of student's independent or team work</td></tr>
<tr><td>[OCEANMU2-U04] is ready to develop in an analytical and synthetic way
research and analysis results and based on them creating conclusions</td><td>Student is able to analytically and synthetically prepare the results of genetic tests and molecular analyzes and conduct correct ones based on them
inference</td><td>[SU2] presentation/project/paper/ report</td></tr>
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<tr><td>Subject contents</td><td>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.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>final paper and discussion</td><td>51.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Ronnegren Anna Lewandowska, Laboratory techniques in molecular biology. 2018 Jerzy Bal, Molecular biology in medicine, Wydawnictwo Naukowe PWN 2008</td></tr>
<tr><td>Supplementary literature</td><td>Piotr Węgleński, Molecular Genetics, PWN Scientific Publishing House, 2008 Brown TA, Genomes, PWN Scientific Publishing House, 2009</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Application of PCR technique in molecular diagnostics</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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