

**Subject card**

<b>Subject name and code</b>	Aquaculture - field training, PG_00054194						
<b>Field of study</b>	Marine Biotechnology						
<b>Date of commencement of studies</b>	October 2024	<b>Academic year of realisation of subject</b>	2024/2025				
<b>Education level</b>	postgraduate studies	<b>Subject group</b>					
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>	at the university				
<b>Year of study</b>	1	<b>Language of instruction</b>	English not applicable				
<b>Semester of study</b>	1	<b>ECTS credits</b>	1.0				
<b>Learning profile</b>	academic	<b>Assessment form</b>					
<b>Conducting unit</b>	Pracownia Akwakultury -> Katedra Biologii Morza i Biotechnologii -> Faculty of Oceanography and Geography						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>	dr inż. Marcin Kuciński					
	<b>Teachers</b>	dr inż. Marcin Kuciński					
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	15.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
	Additional information: Field trip						
<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>	15		2.0		10.0	27
<b>Subject objectives</b>	The goal is to gain knowledge about modern aquaculture as an example of biotechnology, to learn about the main farmed species, new strategies for sustainable food production with low CO2 emissions, and modern methods of fish nutrition, health care, and welfare.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[MBMU2-KW02] Has advanced knowledge of the possibilities of biotechnological use of marine resources	Students got significant knowledge on food production within aquaculture and knows potential of fish, water invertebrates and plants to be used in this sector	[SW2] presentation/project/paper/report
	[MBMU2-KU03] Can use and critically analyze available scientific information; can prepare and present - orally or in writing - a paper covering detailed problems in the field of marine biotechnology on the basis of the scientific information or their own work, with the use of scientific language, including specialized terminology and conceptual apparatus; has the ability to conduct discussions	Students have knowledge and ability for critical analysis of available scientific data and based on these is able to prepare oral presentation and written study related to issues connected with aquaculture using scientific language and terminology. Has ability to moderate scientific discussion	[SU2] presentation/project/paper/report
	[MBMU2-KU01] Can plan and carry out tests in the laboratory and at sea, and document activities and results; can use laboratory equipment under the guidance of a tutor; applies principles of occupational health and safety	Students have the ability to plan and carry out research in the laboratory, document the experiments and their results; can draw conclusions based on the observations made during the field trip to the aquaculture farm and results obtained during the laboratory activities.	[SU2] presentation/project/paper/report
[MBMU2-KK02] Is ready to effectively plan and organize his individual and team work, especially in the laboratory and at sea; is ready to plan his individual career and act in an entrepreneurial manner	Students are ready to plan and organize efficiently individual and team work, especially in laboratory and aquaculture farm, is ready to plan individual professional career and work in an enterprising way.	[SK2] presentation/project/paper/report	
Subject contents	<ol style="list-style-type: none"> <li>1. Visit to the fish farm - breeding of fish under control conditions,</li> <li>2. Hot topics in world and local aquaculture panel discussion and presentations</li> </ol>		
Prerequisites and co-requisites	None		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Preparation of a report	51.0%	100.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Goryczko, K., Grudniewska, J. 2015. Chów i hodowla pstrąga tęczowego. Wydawnictwo IRŚ Olsztyn.</li> <li>2. Zakęś Z. Biotechnologia w akwakulturze. Wydawnictwo IRS. 2008</li> <li>3. Demska-Zakęś K. Innowacyjne techniki oceny biologicznej i ochrony cennych gatunków ryb hodowlanych i raków. Wydawnictwo IRS. 2008.</li> </ol>	

	Supplementary literature	<p>1. Zwierzchowski L (red). Biotechnologia zwierząt. Wyd. Naukowe PWN. 1997.</p> <p>2. Pillay T.V.R and Kutty M.N. 2005. Aquaculture; Principles and practices (second Edition). Blackwell Publishing. <a href="https://www.agrifs.ir/sites/default/files/AQUACULTURE.pdf">https://www.agrifs.ir/sites/default/files/AQUACULTURE.pdf</a></p> <p>3. Beaumont A.R. and Hoare K. 2003. Biotechnology and Genetics in Fisheries and Aquaculture. Blackwell Sciences. <a href="https://www.agrifs.ir/sites/default/files/Biotechnology_and_Genetics_in_Fisheries_and_Aquaculture_0.pdf">https://www.agrifs.ir/sites/default/files/Biotechnology_and_Genetics_in_Fisheries_and_Aquaculture_0.pdf</a></p> <p>4. Overturf K. Molecular research in Aquaculture. Wiley. 2007.</p> <p>5. Dunham R. Aquaculture and Fisheries Biotechnology. Genetic approach. CABI publishing. 2004.</p> <p>6. John Liu. Aquaculture Genome Technologies 2007.</p> <p>7. Scientific articles published in specialist scientific journals such as Aquaculture, Aquaculture Research, Aquaculture International, Scientific Reports, PloS One, etc.</p>
	eResources addresses	Adresy na platformie eNauzanie:
Example issues/ example questions/ tasks being completed	not applicable	
Work placement	Not applicable	

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