

Subject card

Subject name and code	Pathology and molecular diagnostics of aquatic organisms - laboratories, PG_00054202						
Field of study	Marine Biotechnology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Master's 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		English		
Semester of study	1		ECTS credits		2.0		
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		dr Ligia Panasiak				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	20.0	0.0	0.0	20
	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	20		10.0		20.0	50
Subject objectives	The main goal is to obtain practical knowledge in the field of molecular diagnostics used in wild and farmed animals organisms from the aquatic environment. Students will acquire the ability to collect biological samples for further analysis laboratory, isolation and storage of research material, pathogen detection, ploidy assessment, genetic identification of sex and analysis disease disorders and gender development disorders.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[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		Is able to plan and conduct research in the laboratory diagnostics and document activities and results; can under guidance the caregiver uses laboratory equipment; applies safety rules and occupational hygiene		[SU2] presentation/project/paper/report [SU6] demonstration of practical skills		
	[MBMU2-KK03] Is ready to apply the principles of occupational health and safety, especially in the laboratory and at sea; is responsible for their own and others' safety; can recognize hazards and take appropriate action		Is ready to apply occupational health and safety rules especially work in a diagnostic laboratory; is ready to be responsible for the safety of himself and others, and to recognize and take risks activities used		[SK6] demonstration of practical skills		
	[MBMU2-KW04] Knows and deeply understands advanced research methods used in marine biotechnology and related sciences		Knows and understands advanced methods to an in-depth level research used in pathology, molecular diagnostics of fish and related sciences		[SW2] presentation/project/paper/report [SW5] implementation of a problem task		
Subject contents	A1: Histological and cytogenetic characterization of fish with gonadal development disorders. A2: Molecular genetic diagnosis of sex in fish. A3: Application of the RT-PCR technique to identify VHS, IHN and IPN viruses and bacteria causing fish diseases.						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test 1	51.0%	35.0%
	report 2	51.0%	15.0%
	report 1	51.0%	15.0%
	test 2	51.0%	35.0%
Recommended reading	Basic literature	Maj-Paluch, J., Richert R. 2016. Characteristics of salmonid infectious pancreatic necrosis virus and its identification. Med. Veter. 72(4), 222-225. Fadaeifard F., et al. 2013. Multiplex PCR assay for detection of VHS, IPN and IHN in eyed egg, fry and broodstock of rainbow troutJ Pure Appl Microbiol. 7(4); 2838-2844. Haghighi Khiabani asl, A. et al. 2008. Diagnosis of viral hemorrhagic septicemia (VHS) in Iranian rainbow trout aquaculture by pathology and molecular techniques. Bull. Euro. Fish Pathol. 28(5), 2008, 170. Demska-Zakęs K. Innovative techniques for biological assessment and protection of valuable species of farmed fish and crayfish. IRS Publishing House. 2008	
	Supplementary literature	Scientific articles published in the Journal of Fish Disease, Aquaculture, Aquaculture Research, Aquaculture International, etc. Scientific Reports, PloS One, etc.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Analysis of gonadal development disorders in triploid fish		
Work placement	Not applicable		

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