

**Subject card**

<b>Subject name and code</b>	Fish Reproduction and Hatching - laboratory classes, PG_00201319						
<b>Field of study</b>	Aquaculture – Business And Technology						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2027/2028		
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>			Obligatory subject group in the field of study Subject group related to practical vocational preparation		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	2	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	3	<b>ECTS credits</b>			2.0		
<b>Learning profile</b>	practical	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Laboratory of Aquaculture -> Department of Marine Biology and Biotechnology -> Faculty of Oceanography and Geography -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	Subject supervisor		prof. dr hab. inż. Konrad Ocalewicz				
	Teachers						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	E-learning hours included: 0.0						
<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
	Number of study hours	30		2.0		18.0	50
<b>Subject objectives</b>	1: providing students with practical knowledge regarding the reproduction and rearing of fish in controlled conditions. 2: presenting students with biotechnological methods of producing single-sex and sterile fish stocks. 3: familiarizing the student with modern technologies of production, rearing and transport of stocking material.						
<b>Learning outcomes</b>	<b>Course outcome</b>	<b>Subject outcome</b>			<b>Method of verification</b>		
	[AKWAL3_W06] has an advanced understanding of techniques, research methods and tools used in aquaculture	Knows the principles of optimization of fish breeding methods and has acquired theoretical and practical knowledge of the diagnostic methods used			[SW4] test/exam - oral or written [SW2] presentation/project/paper/report		
	[AKWAL3-K04] is ready to identify and recognize dilemmas connected with the profession and understands the need to improve professional competence	Has knowledge of the basic conceptual categories and terminology regarding the biological basis of fish farming, as well as concepts directly related to the practical applications of this knowledge			[SK1] oral statement/conversation/discussion [SK4] test/exam - oral or written		
	[AKWAL3-U06] can apply basic techniques and technological processes related to the use of elements of the environment for practical purposes	Demonstrates the ability to correctly reason based on available data related to fish reproductive processes.			[SU4] test/exam - oral or written [SU6] demonstration of practical skills [SU8] observation of student's independent or team work		
<b>Subject contents</b>	1. collecting germ cells and testing their quality, 2. insemination and early embryonic development of fish, 3. induction of gynogenesis processes and polyploidization in fish, 4. macroscopic and histological analysis of gonads in juvenile and adult fish and individuals after hormonal sex change, 5. basics of work in a fish hatchery: care during fish rearing from the fertilization stage						
<b>Prerequisites and co-requisites</b>							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test 1	51.0%	50.0%
	test 2	51.0%	50.0%
Recommended reading	Basic literature	<p>Bieniarz K., Epler P. 1991. Fish reproduction, ed. Letra, Krakow, Cabrita E., Robles V., Herraes P 2008. Methods in reproductive aquaculture: marine and freshwater species. CRC marine Biology series/CRC Press, Demsk-Zakęs K. 2008. Innovative techniques for biological assessment and protection of valuable species of farmed fish and crayfish. Institute Publishing House Rybactaw Inland Goryczko K. 2008. Trout. Breeding and breeding. Ed. Institute of Inland Fisheries Olsztyn.</p> <p>Articles on fish reproduction and reproduction published in industry journals, e.g. Journal of Fish Biology, Aquaculture, Aquaculture International, Aquaculture Research, Theriogenology, Fisheries Communications</p>	
	Supplementary literature	<p>Gjedrem T., Baranski M. 2009. Selective breeding in aquaculture: an introduction. Springer. Articles on fish reproduction and reproduction published in industry journals, e.g. Journal of Fish Biology, Aquaculture, Aquaculture International, Aquaculture Research, Theriogenology, Fisheries Communications</p>	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Microscopic analysis of fish sperm motility.		
Work placement	Not applicable		

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