

**Subject card**

<b>Subject name and code</b>	Fish Reproduction and Hatching - lecture, PG_00201293						
<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>			exam		
<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
	<b>Number of study hours</b>	30.0	0.0	0.0	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
	<b>Number of study hours</b>	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						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[AKWAL3-U04] can select and use available sources of information, and understand the literature on aquaculture in a broad sense	Applies basic fish reproduction techniques and technological processes related to the use of environmental elements for practical purposes in aquaculture.	[SU1] oral statement/conversation/discussion [SU4] test/exam - oral or written [SU8] observation of student's independent or team work
	[AKWAL3-K04] is ready to identify and recognize dilemmas connected with the profession and understands the need to improve professional competence	Understands the need to improve professional and personal competences connected to new techniques in fish reproduction	[SK1] oral statement/conversation/discussion [SK4] test/exam - oral or written
	[AKWAL3_W03] has an advanced understanding of the conceptual categories and terminology related to the biological basis of aquatic organisms breeding, as well as concepts directly relevant to the practical applications of this knowledge	It characterizes the general principles of creating and developing forms of individual entrepreneurship linked to aquaculture	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion
[AKWAL3_W06] has an advanced understanding of techniques, research methods and tools used in aquaculture	Knows the principles of optimizing breeding methods for invertebrates and aquatic vertebrates and has acquired theoretical and practical knowledge of diagnostic methods used in fish reproduction	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion	
Subject contents	<p>A1. cell functioning: DNA replication and division of somatic and reproductive cells,A2. gametogenesis,A3. structure of fish gametes and assessment of their quality,A4. biological basis of the fertilization process,A5. storage and transport of fish gametes,A6. basics of fish embryogenesis,A7. basics of sex determination and gonad differentiation in fish,A8. endocrinology and environmental influence on fish reproductive processes,A9. maintaining spawning stocks of fish and assessing the sexual maturity of spawners,A10. fish reproductive cycle and production cycle in the breeding center,A11. rearing of juvenile stages of fish,A12. biotechnological methods of producing single-sex and sterile fish stocks,A13. interspecific hybridization of fish,</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final exam	51.0%	100.0%
Recommended reading	Basic literature	<p>Bieniarz K., Epler P. 1991. Fish breeding, ed. Letra, Krakow,</p> <p>Cabrita E., Robles V., Herraez P 2008. Methods in reproductive aquaculture: marine and freshwater species. CRC marine Biology series/CRC Press,</p> <p>Demsk-Zakęś K. 2008. Innovative techniques for biological assessment and protection of valuable species of farmed fish and crayfish. Institute Publishing House Rybactaw Inland</p> <p>Goryczko K. 2008. Trout. Breeding and breeding. Ed. Institute of Inland Fisheries Olsztyn.</p>	
	Supplementary literature	Articles about fish reproduction and reproduction published in industry journals, e.g. Journal of Fish Biology, Aquaculture, Aquaculture International, Aquaculture Research, Theriogenology, Komunikaty Rybackie	
	eResources addresses		
Example issues/ example questions/ tasks being completed	List three methods for obtaining single-sex (all female) stocks of rainbow trout.		
Work placement	Not applicable		

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