

**Subject card**

<b>Subject name and code</b>	Systematics and Basic biology of Cultivated Organisms - lecture, PG_00201278						
<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>			2026/2027		
<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>	1	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	2	<b>ECTS credits</b>			3.0		
<b>Learning profile</b>	practical	<b>Assessment form</b>			exam		
<b>Conducting unit</b>	Laboratory of Ecophysiology and Bioenergetics -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		prof. dr hab. Monika Normant-Saremba				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	45.0	0.0	0.0	0.0	0.0	45
	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>	45		2.0		28.0	75
<b>Subject objectives</b>	The aim of the course is to familiarize the student with the systematics and basic issues in the field of biology of various groups of organisms used in aquaculture.						
<b>Learning outcomes</b>	<b>Course outcome</b>		<b>Subject outcome</b>		<b>Method of verification</b>		
	[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		Knows and understands the terminology relating to the systematics and biology of farmed plants and algae, invertebrates and fish, as well as concepts directly related to the practical applications of this knowledge.		[SW4] test/exam - oral or written		
<b>Subject contents</b>	<p>Plants and algae: classification of cyanobacteria, algae and vascular plants of aquatic environments; structure of cyanobacterial and plant cells; characterization of the level of morphological organization of cyanobacteria, algae and vascular plants; macroalgae development cycles; adaptation of cyanobacteria and algae to the inhabited environments.</p> <p>Invertebrates: taxonomy and morphological structure of the most important species in aquaculture, with particular emphasis on mollusks, crustaceans and echinoderms; anatomy; reproduction and life cycle; sense organs, behavior and inter-individual interactions.</p> <p>Fish: historical outline of the taxonomy and specificity of the taxonomy nomenclature of this group; description of systematic features of fish: shape and color; elements of the external structure of fish; biometric and meristic features; skeleton and the structure and functioning of selected internal organs; characteristics of the main taxonomic groups; reaction to stimuli and behavior.</p>						
<b>Prerequisites and co-requisites</b>							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test/ exam: Fish	51.0%	33.34%
	Test/ exam: Invertebrates	51.0%	33.33%
	Test/ exam: Plants and Algae	51.0%	33.33%
Recommended reading	Basic literature	<p>Barnes R.S.K., Calow P., Olive P.J.W., Golding D.W., Spicer J.I., 2007. The Invertebrates, A Synthesis. 3rd Edition, Blackwell Publishing.</p> <p>Bieniarz K., Epler P., 2004. Zoologia Tom V, Ryby. Leksykon popularnonaukowy. Wydawnictwo Albatros, Kraków.</p> <p>Błaszak C. (red.), 2021. Zoologia Szkarłupnie płazy Tom 3 Część 1. Wydawnictwo Naukowe PWN.</p> <p>Brusca R.C., Moore W., Shuster S.M., 2016. Invertebrates, 3rd Edition, Sinauer Associates.</p> <p>Brylińska M., 2000. Ryby słodkowodne Polski. Wydawnictwo Naukowe PWN Warszawa.</p> <p>Gerstmeier R., Romig T., 2002. Przewodnik. Słodkowodne ryby Europy. Mulico Warszawa.</p> <p>Kadłubowska J. Z., 1975. Zarys algologii, PWN, Warszawa.</p> <p>Kottelat M., Freyhof J., 2007. Handbook of European Freshwater Fishes</p> <p>Nelson J.S., 2006. Fishes of the World. Wiley</p> <p>Pechenik J.A., 2014. Biology of the Invertebrates, 7th Edition, McGraw-Hill Education.</p> <p>Szweykowska A., Szweykowski J. 1974, 1993. Botanika Systematyka, PWN, Warszawa.</p> <p>Szweykowska A., Szweykowski J., 1974, 1993. Botanika Morfologia, PWN Warszawa.</p>	

	Supplementary literature	<p>Gąsowska M., 1962. Kręglouste i ryby. Państwowe Wydawnictwo Naukowe, Warszawa.</p> <p>Grabda E., 1986. Zoologia. Bezkręgowce, PWN.</p> <p>Grodziński Z., 1981. Anatomia i embriologia ryb. Państwowe Wydawnictwo Rolnicze i Leśne, Warszawa.</p> <p>Moore J., 2009. Wprowadzenie do zoologii bezkręgowców, Wydawnictwa Uniwersytetu Warszawskiego.</p> <p>Opuszyński K., 1979. Podstawy biologii ryb. Państwowe Wydawnictwa Rolnicze i Leśne, Warszawa.</p> <p>Pliński Marcin - Glony Zatoki Gdańskiej, część I-VII - Uniwersytet Gdański, 1980.</p> <p>Pliszka F., 1964. Biologia ryb. Państwowe Wydawnictwa Rolnicze i Leśne, Warszawa.</p> <p>Suworow E., 1954. Podstawy ichtiologii. Państwowe Wydawnictwo Naukowe, Warszawa.</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	Taxonomy, external and internal structure, phenotypic diversity; reproduction, life cycle and growth; adaptation to environmental conditions.	
Work placement	Not applicable	

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