

Subject card

Subject name and code	Systematics and Basic Biology of Cultivated Organisms - laboratory classes, PG_00201277						
Field of study	Aquaculture – Business And Technology						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
Education level	Bachelor's studies	Subject group			Obligatory subject group in the field of study Subject group related to practical vocational preparation		
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			6.0		
Learning profile	practical	Assessment form			credit		
Conducting unit	Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Monika Normant-Saremba				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	90.0	0.0	0.0	90
	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	90	4.0	56.0	150		
Subject objectives	The aim of the course is to familiarize students with the systematics and basic concepts of the biology of various groups of aquatic organisms used in aquaculture.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[AKWAL3-U02] can make observations and perform simple physical / biological / chemical measurements that are typical in socio-economic activity based on natural sciences	Can conduct observations and perform simple biological measurements and analyses of various groups of organisms used in culture, i.e., plants and algae, invertebrates, and fish.			[SU6] demonstration of practical skills [SU8] observation of student's independent or team work		
	[AKWAL3-K03] is ready to follow the ethical principles in biological research and adhere to the principles of intellectual honesty	Is ready to adhere to ethical principles in research on various groups of organisms used in aquaculture and to uphold intellectual honesty.			[SK3] text preparation/written work [SK8] observation of student's independent or team work		
	[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 concepts related to the systematics and biology of cultured plants and algae, invertebrates, and fish, with direct reference to the practical applications of this knowledge.			[SW4] test/exam - oral or written		

Subject contents	<p>Plants and Algae:</p> <ol style="list-style-type: none"> 1. Understanding the morphological structure of representatives of different taxonomic groups of cyanobacteria and algae. 2. Identification of species in microphytobenthos and phytoplankton samples. 3. Description of the morphological structure and identification of macroalgae. <p>Invertebrates:</p> <ol style="list-style-type: none"> 1. Understanding the morphological and anatomical structure of organisms from different groups. 2. Identification of species based on taxonomic characteristics. 3. Understanding basic aspects of reproductive biology. 4. Observations of inter-individual interactions. <p>Fish:</p> <ol style="list-style-type: none"> 1. Systematic features of fish: body shape, head, fins, types of caudal fins, types of scales, lateral line. 2. Internal anatomy of fish. 3. Practical familiarity with selected fish species: Salmoniformes, Anguilliformes, Cypriniformes, Perciformes, Pleuronectiformes. 														
Prerequisites and co-requisites															
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 1249 794 1272">Subject passing criteria</th> <th data-bbox="799 1249 1137 1272">Passing threshold</th> <th data-bbox="1142 1249 1481 1272">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 1279 794 1323">test or assignment from the part: Plants and Algae</td> <td data-bbox="799 1279 1137 1323">51.0%</td> <td data-bbox="1142 1279 1481 1323">33.0%</td> </tr> <tr> <td data-bbox="456 1330 794 1375">test or assignment from the part: Fish</td> <td data-bbox="799 1330 1137 1375">51.0%</td> <td data-bbox="1142 1330 1481 1375">33.0%</td> </tr> <tr> <td data-bbox="456 1382 794 1426">test or assignment from the part: Invertebrates</td> <td data-bbox="799 1382 1137 1426">51.0%</td> <td data-bbox="1142 1382 1481 1426">34.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	test or assignment from the part: Plants and Algae	51.0%	33.0%	test or assignment from the part: Fish	51.0%	33.0%	test or assignment from the part: Invertebrates	51.0%	34.0%
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Recommended reading	Basic literature	<p>Literature used during classes:</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>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>Moraczewski J., Riedel W., 1976. Ćwiczenia z zoologii bezkręgowców, PWN.</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> <p>Kadłubowska J. Z., 1975. Zarys algologii, PWN, Warszawa.</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>Bieniarz K., Epler P., 2004. Zoologia Tom V, Ryby. Leksykon popularnonaukowy. Wydawnictwo Albatros, Kraków.</p> <p>Nelson J.S., 2006. Fishes of the World. Wiley</p> <p>Kottelat M., Freyhof J., 2007. Handbook of European Freshwater Fishes.</p> <p>Literature used for independent study:</p> <p>Grabda E., 1986. Zoologia. Bezkręgowce, PWN.</p> <p>Moore J., 2009. Wprowadzenie do zoologii bezkręgowców, Wydawnictwa Uniwersytetu Warszawskiego.</p> <p>Moraczewski J., Riedel W., 1976. Ćwiczenia z zoologii bezkręgowców, PWN. Pliński Marcin - Glony Zatoki Gdańskiej, część I-VII - Uniwersytet Gdański, 1980.</p> <p>Gąsowska M., 1962. Kręglouste i ryby. Państwowe Wydawnictwo Naukowe, Warszawa.</p> <p>Grodziński Z., 1981. Anatomia i embriologia ryb. Państwowe Wydawnictwo Rolnicze i Leśne, Warszawa.</p>
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	Supplementary literature	<p>Supplementary literature:</p> <p>Błaszak C. (red.), 2012. Zoologia Tom 2 część 2 Stawonogi, Wydawnictwo Naukowe PWN.</p> <p>Błaszak C. (red.), 2016. Zoologia bezkręgowce Tom 1 część 2, Wtórnojamowce (bez stawonogów). Wydawnictwo Naukowe PWN.</p> <p>Jura Cz., 1997. Bezkręgowce, PWN. Lee R.E. - Phycology - Cambridge Univ. Press, Cambridge, 1998.</p> <p>Hoek C. van den, Mann D.G., Jahns H.M., 1998. Algae, An introduction to phycology, Cambridge Univ. Press, Cambridge.</p> <p>Humm H. J., Wicks S. R., 1990. Introduction and guide to marine bluegreen algae, J. Wiley & Sons, New York.</p> <p>Kumar H.D., 1999. Introductory Phycology, EWP Affiliated East-West Press Private Limited. Bone</p> <p>Q.M.A., Marshall N.B., 1982. Biology of fishes. Blackie. Glasgow and London.</p> <p>Cailliet G.M., Love M.S., Ebeling A.W., 1986. Fishes. Wadsworth Publishing Company, Belmont, California.</p> <p>Lagler K.F., Bardach J.E., Miller R.R., May Passino D.R., 1977. Ichthyology. John Willey & Sons. New York, Chichester, Brisbane, Toronto</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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