

Subject card

Subject name and code	Basic physiology of aquacultured invertebrates - laboratory exercises, PG_00075876						
Field of study	Aquaculture – Business And Technology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Bachelor's studies		Subject group				
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		2.0		
Learning profile	practical		Assessment form		credit		
Conducting unit	Laboratory of Ecophysiology and Bioenergetics -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Joanna Hegele-Drywa				
	Teachers						
Lesson types	Lesson type	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						
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	30		10.0		13.0	53
Subject objectives	The aim of the course is to familiarise the student with the basic physiological processes of aquatic invertebrates and the influence of various factors on these processes.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[AKWAL3-K04] is ready to identify and recognize dilemmas connected with the profession and understands the need to improve professional competence		student know and understand basic physiological processes, their link to the optimization of aquatic invertebrate husbandry methods and has acquired theoretical and practical knowledge of the diagnostic techniques used		[SK4] test/exam - oral or written		
	[AKWAL3-U03] can competently obtain selected aquatic invertebrates for ongoing breeding and perform simple practical tasks related to their breeding under the guidance of the scientific supervisor		student can obtain selected aquatic invertebrates for cultivation and can carry out simple practical tasks related to their cultivation under the guidance of the supervisor		[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		student is prepared to observe ethical principles in biological research on invertebrates and to observe the principles of intellectual honesty (content of the curriculum)		[SK6] demonstration of practical skills [SK8] observation of student's independent or team work		
Subject contents	1. Determination of food preference, rate of food consumption in different invertebrates. 2. Determination of ammonia excretion rate in different invertebrates. 3. Determination of rates of aerobic metabolism (respiration) in different invertebrates. 4. Determination of haemolymph osmolality of different invertebrates. 5. Determination of the energy value of selected cultivated invertebrates.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	preparation for classes and activity	51.0%	10.0%
	factual correctness of the reports	51.0%	10.0%
	colloquium/test	51.0%	80.0%
Recommended reading	Basic literature	1. Barnabe G., 1994. Aquaculture: Biology And Ecology Of Cultured Species (Ellis Horwood series in aquaculture and fisheries support). CRC Press. 2. Willmer, P., Stone, G., Johnston, I., 2000. Environmental Physiology of Animals. Blackwell Science Ltd. 3. Potts W.T.W., Parry G., 1964. Osmotic and Ionic Regulation in Animals. Pergamon Press, Oxford. 4. Prosser C.L., Brown Jr. F.A., 1961. Comparative Animal Physiology. W.B. Saunders Company, London. 5. Aquaculture, Marine and Freshwater Behavior and Physiology, Journal of Experimental Marine Biology and Ecology, Comparative Biochemistry and Physiology A.	
	Supplementary literature	1. Aalimahmoudi M. et al., 2016. Effects of feeding frequency on growth, feed conversion ratio, survival rate and water quality of white leg shrimp (<i>Litopenaeus vannamei</i> , Boone, 1931), International Journal of Fisheries and Aquatic Studies, 4 (3): 293-297. 2. Guerin J.L., Stickle W.B., 1992. Effects of salinity on the tolerance and bioenergetics of juvenile blue crabs (<i>Callinectes sapidus</i>) from waters of different environmental salinities. Mar. Biol. 114, 391396. 3. Hopkin J.B., 2007. Growth and survival of the pacific white shrimp, <i>Litopenaeus vannamei</i> , in sea salt and other ionic environments. All Theses.Paper 1834. 4. Normant M., Król M., Jakubowska M., 2012. Effect of salinity on the physiology and bioenergetics of adult Chinese mitten crabs <i>Eriocheir sinensis</i> .Journal of Experimental Marine Biology and Ecology 416/417, 215-220. 5. Robertson L., Lawrence A.L., Castille F.L., 2008. Effect of feeding frequency and feeding time on growth of <i>Penaeus vannamei</i> (Boone).Aquaculture Research 24, 1-6.	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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