University of Gdańsk

Subject card

Subject name and code	Basic Physiology of Aquacultured Invertebrates - laboratory classes, PG_00201315		
Field of study	Aquaculture – Business And Technology		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study
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

Additional information:

laboratory exercises

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	2.0	18.0	50

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	The 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-K03] is ready to follow the ethical principles in biological research and adhere to the principles of intellectual honesty	The student is prepared to adhere to ethical principles in research on basic physiological processes in cultivated invertebrates and to adhere to the principles of intellectual integrity	[SK6] demonstration of practical skills [SK8] observation of student's independent or team work
[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	The student can sample selected aquatic invertebrates for cultivation and can carry out simple practical tasks related to their cultivation and observation of basic physiological processes under the guidance of the supervisor	[SU6] demonstration of practical skills [SU8] 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
factual correctness of the reports	51.0%	10.0%
preparation for classes and activity	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 (*Litopenaeus vannamei*, 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 (*Callinectes sapidus*) from waters ofdifferent environmental salinities. Mar. Biol. 114, 391396. 3. Hopkin J.B., 2007. Growth and survival of the pacific white shrimp, *Litopenaeus vannamei*, 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 *Eriocheir sinensis*.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 *Penaeus vannamei* (Boone).Aquaculture Research 24, 1-6.
eResources addresses	
Example issues/ example questions/ tasks being completed	
Work placement	Not applicable

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