Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

Field of s	tudy	Δαιιά	aculture and Fis	heries			
Field of study Mode of study		Aquaculture and Fisheries stationary Level first cycle				•	
	e's qualification	inżyi	-	Lever	Insteycle	WNo	7iR
Fields of	•		cultural sciences				
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	es of science	-	hal science and				
	nal profile	gene	eral academic			-I r	
Module							
Course u	nit	-	robiology				
Code		WNC	DZIR/AQF/S1/				
Field of s	pecialisation						
Administe	ering faculty	of Re	artment of Hydr eproduction		ogy and Biotechnolog		1
ECTS		6.0		ECTS (forms)	6.0		
Form of c	course credit	exar	nination	Language	english		
Electives				Elective group			
Form of i	instruction	Cod	Semester	Hours	ECTS	Weight	Credit
laborator	ry course	L	1	30	3.0	0.50	credits
lecture	-	w	1	30	3.0	0.50	examination
Leading t	teacher	Wier	aszek Beata (B	 eata.Wiecaszek@z	ut edu pl)		
Other tea				angelika.linowska@	•		
		LIIIO			gzuc.cuu.pi/		
Droroau							
Prerequis		fhatar	and Toology				
W-1	Basic knowledge o		ny and zoology.				
W-1 Module/c	Basic knowledge o	es					
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Faculty of Food Sciences and Fisheries

Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

Faculty of Food Sciences and Fisheries

content divided into various forms of instruction					Nur	nber o	f hours	
Aquatic plants as an indicator of water trophy.							1	
The use of hydrophytes in various branches of the economy.						1		
Taxonomical characteristic of Protoza and Cnidaria; methods of reproduction - lifespan, diet. Species dangerous for human health.						3		
onomical characteristic o	f Crustacea (Ento	straca and Ma	lacostraca)				5	
Biological and taxonomical characteristic of Cephalopoda						3		
cteristic and biological t	raits of Vertebrat	a: Amphibia, P	leptilia, Aves	and Mai	mmalia			4
f activity						Nur	nber o	f hours
participation in laboratories					30			
nsultations							20	
literature on current lab	oratories						20	
ssing the laboratories								20
9								30
ecturer								30
own work (literature study)						30		
imedia techniques								
tic discussion								
es								
gressive, P - final)								
ntrol of the correctness	of work during cla	asses						
Assessment of the performance of laboratory tasks related to the content of the program								
entyfication of selected	grups of hydrobio	onts.						
-								
Designed learning outcomes		Reference to Learning Outcomes f for qualifications at PQF 6, 7 or 8	Reference to learning outcomes for qualifications at level 6 or 7 that enable acquiring engineering competences	Course objectives			Teaching methods	
							•	•
drophyte and animal ironments.	AQF_1A_W05	P6S_WG		C-1	T-W-1 T-W-2 T-W-3	T-W-5 T-W-7	M-1 M-2 M-3	S-3 S-5
e specificity of the structure d animals, is able to list and o life in the water ydrophytes.	AQF_1A_W05	P6S_WG		C-2	T-W-2 T-W-3 T-W-4	T-W-5 T-W-7	M-1 M-2 M-3	S-3 S-5
AQF_1A_B07_W03 A student can indicate the economic use of selected hydrobionts		P6S_WK	P6S_WG	C-3	T-W-2 T-W-5 T-W-6	T-W-7 T-W-8	M-1 M-2	S-5
AQF_1A_B07_W04 A student knows the methods used in hydrobiological research.		P6S_WG		C-3	T-L-6 T-W-6	T-W-7	M-1 M-2 M-3	S-4 S-5
		•		•	•		•	•
Skills AQF_1A_B07_U01 A student has the ability to practical search and collect phytohydrobionts of various degrees of organization.		P6S_UW		C-1 C-2	T-L-1 T-L-2 T-L-3 T-L-4 T-L-5 T-L-13	T-W-1 T-W-2 T-W-3 T-W-4 T-W-5	M-2 M-3	S-1 S-2 S-3 S-4
AQF_1A_B07_U02 The student has the ability to practical recognition of selected species of vertebrates and invertebrates of different types of aquatic environments.				C-4	T-L-7 T-L-8 T-L-9 T-L-10 T-L-11	T-W-11		S-1 S-2 S-3 S-4
						gnition of selected different types of AQF_1A_U09 P6S_UW C-4 T-L-7 T-L-8 T-L-9 T-L-10 T-L-11	gnition of selected different types of AQF_1A_U09 P6S_UW C-4 T-L-7 T-L-7 T-L-7 T-L-13 T-L-8 T-W-1 T-L-9 T-W-9 T-L-10 T-W-10 T-L-10 T-W-10	gnition of selected AOE 1A LIOD RES LIVE C 4 T-L-9 T-W-9 M-2

Zachodniopomorski Uniwersytet Technologiczny w Szczecinie **Faculty of Food Sciences and Fisheries** T-L-1 T-L-12 T-L-2 T-L-13 T-L-3 T-W-1 T-L-4 S-1 T-W-2 S-2 S-3 S-4 AQF_1A_B07_K01 C-1 T-L-5 M-1 P6S KK T-W-3 C-3 C-4 M-2 M-3 A student is aware of the need to constantly expand and update AQF_1A_K01 T-L-6 P65_KR T-W-4 T-L-7 knowledge using specialized sources. T-W-5 T-L-8 S-5 T-W-6 T-L-9 T-W-7 T-L-10 T-W-8 T-L-11

P6S_KK

Evaluation criterion

AQF_1A_K04

T-L-13

. T-W-1

T-W-2

C-1

C-4

T-W-3

T-W-4

M-1

M-1 M-2 M-3

S-1

S-4

AQF 1A B07 K02

Knowledge

identify biodiversity. Outcomes

A student acquires the awareness of the need to observe and

Grade

5,0

AQF_1A_B07_W01	2,0	A student is not able to characterize any hydrophyte and animal communities of various aquatic environments.
	3,0	A student mentions and generally describes some individual auqatic hydrophytes, algae communities and animals.
	3,5	
	4,0	
	4,5	
	5,0	A student mentions and generally describes individual plant and animal communities, does not distinguish between their anatomical, morphological and physiological structure.
AQF_1A_B07_W02	2,0	A student is not able to characterize the main morphological, anatomical and physiological features of selected groups of hydrobionts.
	3,0	The student generally mentions and characterizes the morphological, anatomical and physiological features of selected groups of systematic hydrobionts (in English).
	3,5	
	4,0	
	4,5	
	5,0	A student lists in detail and characterizes the morphological, anatomical and physiological features of most groups of systematic hydrobionts (in English and Latin). He can conclude about the occurrence of certain features as an expression of the adaptation of these organisms to the environment they occupy.
AQF_1A_B07_W03	2,0	A student cannot indicate any economic application for hydrobionts.
	3,0	A student is able to indicate a single economic application of hydrobionts.
	3,5	
	4,0	
	4,5	
	5,0	A student can indicate various economic applications of hydrobionts. Can conclude about the necessity of using hydrobionts in the national and world economy.
AQF_1A_B07_W04	2,0	A student does not know any method used in hydrobiological research.
	3,0	A student lists individual methods used in hydrobiological research.
	3,5	
	4,0	
	4,5	
	5,0	A student lists and describes in detail the various methods used in hydrobiological research.
Skills		
AQF_1A_B07_U01	2,0	A student is unable to recognize and assess the degree of organization of any group of systematic algae and macrophytes.
	3,0	A student is able to recognize and assess the degree of organization of individual systematic groups of algae and macrophytes.
	3,5	
	4,0	
	4,5	
		A student is able to recognize and access the degree of arganization of most groups of systematic algae and macrophytes

A student is able to recognize and assess the degree of organization of most groups of systematic algae and macrophytes. He can find and identify similarities and differences between various groups. Is able to apply appropriate techniques of 5,0 research material collection adapted to the appropriate group of organisms. AQF_1A_B07_U02 2,0 A student cannot recognize any of the groups of aquatic invertebrates and vertebrates. 3,0 A student can recognize individual groups of aquatic invertebrates and vertebrates. 3,5 4,0 4,5 The student is able to recognize the majority of aquatic invertebrates and vertebrates. He is able to indicate similarities and

differences between individual groups. Can indicate adaptation of aquatic animals to the environment they occupy.

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Other social con	npetences
AQF_1A_B07_K01	2,0 The student does not study the course content of the subject, can not present them.
	3,0 The student is aware of and is able to update their knowledge about the subject matter.
	3,5
	4,0
	4,5
	5,0 The student is aware of and is able to update their knowledge about the subject matter. He knows and is able to use specialized sources of knowledge. Is able to follow the rules of working with animals.
QF_1A_B07_K02	2,0 A student is passive and does not acquire openness to observations of hydrobionts biodiversity. He cannot pass on knowledge of their role in the aquatic environment to others.
	3,0 A student is moderately open to observations of hydrobiont biodiversity. Cannot pass on knowledge of their role in the aquatic environment to others.
	3,5
	4,0
	4,5
	5,0 A student is hungry for knowledge, open to observing biodiversity of hydrobionts, willing to conduct scientific research on this subject. He willingly and skillfully shares his knowledge with others.

Required reading

 Hayward P. J., Ryland J. S., Handbook of the Marine Fauna of North-West Europe, Oxford University Press, Oxford, 1995
 by Cleveland Hickman, Larry Roberts, Allan Larson, Helen l'Anson, Integrated Principles of Zoology, McGraw-Hill Education; 18th Edition, 2019

3. Bendre A., Kumar A., A Textbook of Practiclal Botany 1, Rastogi Publications, India, 2009

4. Wetzel R. G., Limnology: Lake and River Ecosystems, Elsexier Academic Press, USA, 2001

Supplementary reading

 B. W. Halstead, P. S. Auerbach, D. Campbell, A Color Atlas of Dangerous Marine Animals, CRC Press, Inc. Boca Raton, Florida, 1990
 Schweingruber F. H., Kucerova A., Adamec L., Dolezal J., Anatomic Atlas of Aquatic and Wetland Plant Stems, Springer International Publishing, Switzerland, 2020