




WNoŻiR



Field of study	Aquaculture and Fisheries					
Mode of study	stationary	Level	first cycle			
Graduate's qualification	inżynier					
Fields of science	agricultural sciences					
Disciplines of science	animal science and fisheries (100%)					
Educational profile	general academic					
Module						
Course unit	Viral diseases of aquatic organisms					
Code	WNOZIR/AQF/S1/					
Field of specialisation						
Administering faculty	Department of Aquatic Bioengineering and Aquaculture					
ECTS	6.0	ECTS (forms)	6.0			
Form of course credit	examination	Language	english			
Electives		Elective group				
Form of instruction	Cod	Semester	Hours	ECTS	Weight	Credit
laboratory course	L	5	30	3.0	0.50	credits
lecture	W	5	30	3.0	0.50	examination
Leading teacher	Kiełpińska Jolanta (Jolanta.Kielpinska@zut.edu.pl)					
Other teachers						
Prerequisites						
W-1	Students should have knowledge of cell biology, immunology and the basics of genetics					
Module/course unit objectives						
C-1	Understanding the pattern of viral infections in the aquatic environment					
C-2	Understanding the relationship between virus and aquatic environment					
C-3	Knowledge of research methods used in the diagnosis of viral diseases. The choice of method for specific cases					
C-4	The ability to diagnose selected viral diseases of fish, mussels and crustaceans					
Course content divided into various forms of instruction					Number of hours	
T-L-1	Sampling for diagnostic tests					4
T-L-2	Preservation of biological material for analysis and its archiving					2
T-L-3	Fish section					2
T-L-4	Shrimp section					2
T-L-5	Mussel section					2
T-L-6	Visit of students in the reference laboratory - ĆWICZENIA TERENOWE					6
T-L-7	Isolation of viral DNA					2
T-L-8	PCR reaction - sample analysis. Interpretation of diagnostic test results					2
T-L-9	Interpretation of diagnostic test results					4
T-L-10	Prevention of viral diseases in aquaculture					4
T-W-1	Basic terminology in virology					2
T-W-2	General issues related to viral infection					2
T-W-3	Viruses as an element of the aquatic environment					2
T-W-4	Selected viral diseases of carp					4
T-W-5	Selected viral diseases of sturgeons					2
T-W-6	Selected viral diseases of eels					2
T-W-7	Selected viral diseases of salmonids					2
T-W-8	Selected viral diseases of shrimps					2
T-W-9	Selected viral diseases of molluscs					2
T-W-10	Diagnostic techniques in virology					4
T-W-11	Virus transmission in the aquatic environment					2
T-W-12	Hygiene, prevention and vaccination as part of the health management of aquatic organisms					4

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Student workload - forms of activity		Number of hours
A-L-1	Participation in classes	30
A-L-2	Preparation for the exam	35
A-L-3	Cocultation with the lecturer	25
A-W-1	Participation in classes	30
A-W-2	Preparation for the exam	35
A-W-3	Consultation with the lecturer	25

### Teaching methods / tools

M-1	Lecture
M-2	Discussion

### Evaluation methods (F - progressive, P - final)

S-1	F	Test exam
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Designed learning outcomes	Reference to the learning outcomes designed for the fields of study	Reference to Learning Outcomes 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	Course content	Teaching methods	Evaluation methods
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### Knowledge

AQF_1A_C17_W01 The student understands the basic concepts and virological terminology. The student is able to describe selected viral diseases in aquatic organisms.	AQF_1A_W12	P6S_WG		C-1 C-2 C-3 C-4	T-W-3 T-W-11	M-1 M-2	S-1
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### Skills

AQF_1A_C17_U01 The student is able to perform a section of fish and clams. The student is able to conserve biological material for virological analyzes.	AQF_1A_U14 AQF_1A_U25	P6S_UW	P6S_UW	C-1 C-2 C-3 C-4	T-L-3 T-W-10	M-1 M-2	S-1
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### Social competences

AQF_1A_C17_K01 The student is aware of his knowledge and is able to use it in practice.	AQF_1A_K04 AQF_1A_K05	P6S_KK P6S_KR		C-1 C-2 C-3 C-4	T-L-2 T-W-12	M-1 M-2	S-1
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Outcomes	Grade	Evaluation criterion
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### Knowledge

AQF_1A_C17_W01	2,0	
	3,0	The student has a basic knowledge of viral infections in the aquatic environment.
	3,5	
	4,0	
	4,5	
	5,0	

### Skills

AQF_1A_C17_U01	2,0	
	3,0	The student is able to collect and prepare biological material for virological diagnostics. The student is able to choose prophylactic methods in the case of viral infection in the aquatic environment.
	3,5	
	4,0	
	4,5	
	5,0	

### Other social competences

AQF_1A_C17_K01	2,0	
	3,0	The student is aware of his knowledge about the spread of viral diseases in the leading environment.
	3,5	
	4,0	
	4,5	
	5,0	

### Required reading

1. Mahy Brian W.J., THE DICTIONARY OF VIROLOGY, 2011, Fourth Edition
2. Kibenge F., Godoy M., AQUACULTURE VIROLOGY, 2011
3. Ahne W., VIRUSES OF LOWER VERTEBRATES, Springer-Verlag, 2011

### Supplementary reading



*Supplementary reading*

1. Cann A., PRINCIPLES OF MOLECULAR VIROLOGY, Academic Press, 2011

2. MacLachlan N.J., Dubovi, VETERINARY VIROLOGY, 2011, Forth Edition

3. Cunningham C.O., Molecular Diagnosis of Salmonid Diseases, Kluwer Academic Publishers, 2011