



WNoŻiR



<i>Field of study</i>		Aquaculture and Fisheries				
<i>Mode of study</i>		stationary	<i>Level</i>	first cycle		
<i>Graduate's qualification</i>		inżynier				
<i>Fields of science</i>		agricultural sciences				
<i>Disciplines of science</i>		animal science and fisheries (100%)				
<i>Educational profile</i>		general academic				
<i>Module</i>						
<i>Course unit</i>		Basics of fish taxonomy				
<i>Code</i>		WNOZIR/AQF/S1/				
<i>Field of specialisation</i>						
<i>Administering faculty</i>		Department of Hydrobiology, Ichthyology and Biotechnology of Reproduction				
<i>ECTS</i>		6.0	<i>ECTS (forms)</i>	6.0		
<i>Form of course credit</i>		examination	<i>Language</i>	english		
<i>Electives</i>			<i>Elective group</i>			
<i>Form of instruction</i>	<i>Cod</i>	<i>Semester</i>	<i>Hours</i>	<i>ECTS</i>	<i>Weight</i>	<i>Credit</i>
laboratory course	L	1	30	3.0	0.50	credits
lecture	W	1	30	3.0	0.50	examination
<i>Leading teacher</i>		Więcaszek Beata (Beata.Wiecaszek@zut.edu.pl)				
<i>Other teachers</i>						
<i>Prerequisites</i>						
<i>W-1</i>	Knowledge of principles in zoology and fish anatomy					
<i>Module/course unit objectives</i>						
<i>C-1</i>	To familiarize students with the species diversity of freshwater and marine fish species					
<i>C-2</i>	To familiarize students with scientific tools used in fish taxonomy					
<i>Course content divided into various forms of instruction</i>						<i>Number of hours</i>
<i>T-L-1</i>	Practical introduction to acquaint with morphological and anatomical characters of different fish for species identification (types of scales, fins, gill arches, pharyngeal teeth etc).					3
<i>T-L-2</i>	Identification of the most important economically and biologically lamprey and fish species from order Petromyzontiformes and classis Chondrichthyes					6
<i>T-L-3</i>	Identification tools for fish species from Acipenseriformes: measurements of important metric and meristic characters, identification of scale types on the fish body					4
<i>T-L-4</i>	Determination of species, evaluation of different stages of development of fish from Anguilliformes and Clupeiformes.					4
<i>T-L-5</i>	Identification and classification of fish species from Cypriniformes and Siluriformes orders. Structure of pharyngeal teeth. Records of squamation formula in cyprinids.					5
<i>T-L-6</i>	Identification and classification of fish species from Salmoniformes, Gadiformes and Scorpaeniformes. Otoliths research.					4
<i>T-L-7</i>	Determination and taxonomical comparison of fish species from Perciformes (structures of dorsal fin, scales type, dentary structures), Pleuronectiformes (symmetrical and asymmetrical type of development stages) and Tetraodontiformes					4
<i>T-W-1</i>	Introduction to nomenclature in taxonomy and classification, based on the natural zoological system.					4
<i>T-W-2</i>	Taxonomical features of lampreys (jaw-less fish) and fish in taxons' identification					2
<i>T-W-3</i>	History of fish evolution on Earth					2
<i>T-W-4</i>	Taxonomic review and characteristic of lampreys Petromyzontida					2
<i>T-W-5</i>	Taxonomic review and characteristic of cartilaginous fish from classis Chondrichthyes (sharks and skates) from orders: Orectolobiformes, Lamniformes, Carcharhiniformes, Squaliformes, Rajiformes, Myliobatiformes.					6
<i>T-W-6</i>	Taxonomic review and characteristic of ganoid fish and teleosts from orders: Acipenseriformes, Osteoglossiformes, Anguilliformes, Clupeiformes, Cypriniformes and Siluriformes.					8
<i>T-W-7</i>	Taxonomic review and characteristic of teleosts from orders: Salmoniformes, Gadiformes, and Batrachoidiformes					3
<i>T-W-8</i>	Taxonomic review and characteristic of teleosts from orders: Perciformes, Pleuronectiformes, and Tetraodontiformes.					3
<i>Student workload - forms of activity</i>						<i>Number of hours</i>
<i>A-L-1</i>	classes attendance					30



Student workload - forms of activity		Number of hours
A-L-2	consultation with lecturer	25
A-L-3	literature study	35
A-W-1	lectures attendance	30
A-W-2	preparation for classes	30
A-W-3	own work (literature study)	30

Teaching methods / tools	
M-1	Lecture
M-2	Didactic discussion
M-3	Laboratory exercises

Evaluation methods (F - progressive, P - final)		
S-1	F	test
S-2	P	exam
S-3	F	Practical identification of selected groups of fish species

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_C01_W01	Student knows the most important fish species and the methods used in taxonomy	AQF_1A_W05	P6S_WG		C-1 C-2	T-W-1 T-W-2 T-W-3	T-W-4 T-W-5 T-W-6	M-1	S-1 S-3

Skills									
AQF_1A_C01_U01	Student is able to identify the most important fish species and can use taxonomical keys	AQF_1A_U07	P6S_UW		C-2	T-W-1 T-W-4 T-W-5	T-W-7 T-W-8	M-1 M-3	S-3

Social competences									
AQF_1A_C01_K01	Student is able to indicate and describe the most important fish species from the both biologically and economically point of view	AQF_1A_K01	P6S_KK P6S_KR		C-1	T-W-4 T-W-6	T-W-7 T-W-8	M-2 M-3	S-2

Outcomes	Grade	Evaluation criterion
Knowledge		
AQF_1A_C01_W01	2,0	
	3,0	Student can recognize and taxonomically describe at least 60% of known in the lectures fish species
	3,5	
	4,0	
	4,5	
	5,0	
Skills		
AQF_1A_C01_U01	2,0	
	3,0	Student can choose and properly use the taxonomical keys, and can indicate the most important characters distinguishing between genera and families
	3,5	
	4,0	
	4,5	
	5,0	
Other social competences		
AQF_1A_C01_K01	2,0	
	3,0	Student can indicate and describe at least 60% of the most important fish from the economically point of view
	3,5	
	4,0	
	4,5	
	5,0	

Required reading
1. Nelson Joseph, Fishes of the world, John Wiley & Sons, Inc., USA, 2016, Fifth edition
2. Kottelat M. and Freyhof J., Handbook of European Freshwater Fishes, Imprimerie du Democrate SA Delemont, Switzerland, 2007, 1st edition