

**Subject card**

<b>Subject name and code</b>	Biology of Fishes - laboratory exercises, PG_00118086						
<b>Field of study</b>	Oceanography						
<b>Date of commencement of studies</b>	October 2024	<b>Academic year of realisation of subject</b>			2026/2027		
<b>Education level</b>	undergraduate studies	<b>Subject group</b>			Obligatory subject group in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	3	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	6	<b>ECTS credits</b>			3.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>					
<b>Conducting unit</b>	Pracownia Ichtiologii -> Katedra Ekologii Morza -> Faculty of Oceanography and Geography						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr hab. Mariusz Sapota				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	0.0	45.0	0.0	0.0	45
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	45		11.0		25.0	81
<b>Subject objectives</b>	Familiarization with the basic issues in the field of general ichthyology. Getting to know the principles of conducting basic ichthyological analyses						
<b>Learning outcomes</b>	<b>Course outcome</b>		<b>Subject outcome</b>			<b>Method of verification</b>	
	OCEANL3-U03		is able to analytically and synthetically develop the results of ichthyological research and analyses and on their basis make correct conclusions			[SU4] test/exam - oral or written	
	OCEANL3-U11		can work individually and in a group performing ichthyological analyses			[SU6] demonstration of practical skills [SU8] observation of student's independent or team work	
	[OCEANL3-K05] is willing to take responsibility for the safety of his/her own and others' work, is aware of the risks and threats resulting from the work performed		is ready to comply with the rules of occupational health and safety in force in the ichthyological laboratory, to take care of the specialist equipment entrusted to him/her, is aware of the risks and hazards resulting from the work performed			[SK8] observation of student's independent or team work	

Subject contents	<p>A review of selected representatives of the Baltic ichthyofauna.</p> <p>The external structure of the fish. General body division. Fins, fin rays, visible elements of sensory organs.</p> <p>Internal structure of the fish: digestive system, endocrine organs associated with the digestive system.</p> <p>Internal structure of the fish: circulatory system, blood circulation, other body fluids.</p> <p>Internal structure of the fish: respiratory system, gills, gas exchange through the skin.</p> <p>Internal structure of the fish: nervous system, brain, spinal cord, eyes.</p> <p>Internal structure of the fish: skeleton, axial skeleton, limb skeleton, bones.</p> <p>Detailed ichthyological analysis. Components, method of execution.</p> <p>Determining the age of fish. Scales, otoliths, fin rays, vertebrae, flat bones.</p> <p>Analysis of fish food. The method of collecting material and performing analyses.</p> <p>Morphometric measurements of fish.</p> <p>Basic methods of statistical analysis of the results obtained.</p>								
Prerequisites and co-requisites	Basic knowledge of zoology								
Assessment methods and criteria	<table border="1" data-bbox="451 1099 1477 1173"> <thead> <tr> <th data-bbox="451 1099 798 1133">Subject passing criteria</th> <th data-bbox="798 1099 1141 1133">Passing threshold</th> <th data-bbox="1141 1099 1477 1133">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 1133 798 1173">final test</td> <td data-bbox="798 1133 1141 1173">51.0%</td> <td data-bbox="1141 1133 1477 1173">100.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	final test	51.0%	100.0%
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final test	51.0%	100.0%							
Recommended reading	<p>Basic literature</p> <p>Brylińska M., 2000. Ryby słodkowodne Polski. Państwowe Wydawnictwo Naukowe. Warszawa</p> <p>Jasiński A., 1973. Zootomia kręgowców. Państwowe Wydawnictwo Naukowe</p> <p>Klimaj A., Rutkowicz S., 1970. Atlas ryb Północnego Atlantyku. Wydawnictwo Morskie. Gdańsk</p> <p>Rutkowicz S., 1982. Encyklopedia ryb morskich. Wydawnictwo Morskie. Gdańsk</p> <p>Gąsowska M., 1962. Kręglouste i ryby. Państwowe Wydawnictwo Naukowe. Warszawa</p> <p>Grodziński Z., 1981. Anatomia i embriologia ryb. Państwowe Wydawnictwo Rolnicze i Leśne. Warszawa</p> <p>Opuszyński K., 1979. Podstawy biologii ryb. Państwowe Wydawnictwa Rolnicze i Leśne. Warszawa</p> <p>Pliszka F., 1964. Biologia ryb. Państwowe Wydawnictwa Rolnicze i Leśne. Warszawa</p> <p>Suworow E., 1954. Podstawy ichtiologii. Państwowe Wydawnictwo Naukowe. Warszawa</p>								

	Supplementary literature	<p>Bone Q.M.A., Marshall N.B., 1982. Biology of fishes. Blackie. Glasgow and London</p> <p>Cailliet G.M., Love M.S., Ebeling A.W., 1986. Fishes. Wadsworth Publishing Company, Belmont, California</p> <p>Lagler K.F., Bardach J.E., Miller R.R., May Passino D.R., 1977. Ichthyology. John Willey &amp; Sons. New York, Chichester,</p>
	eResources addresses	Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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