

Subject card

Subject name and code	Biology of Fishes - laboratory, PG_00206173						
Field of study	Oceanography						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2028/2029		
Education level	Bachelor's studies	Subject group			Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	6	ECTS credits			3.0		
Learning profile	academic	Assessment form			credit		
Conducting unit	Laboratory of Ichthyology -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Mariusz Sapota				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	0.0	0.0	45
	E-learning hours included: 0.0						
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	45		3.0		27.0	75
Subject objectives	Familiarization with the basic issues in the field of general ichthyology. Getting to know the principles of conducting basic ichthyological analyses						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[OCEANL3-U11] is able to work individually and collaborate in a team, assuming various roles and performing different tasks		can work individually and in a group performing ichthyological analyses		[SU4] test/exam - oral or written		
	[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		[SK4] test/exam - oral or written		
	[OCEANL3-U03] is able to process, describe, and present results, and draw conclusions		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		

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 1487 1171"> <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 1487 1133">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 1133 798 1171">Test</td> <td data-bbox="798 1133 1141 1171">51.0%</td> <td data-bbox="1141 1133 1487 1171">100.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Test	51.0%	100.0%
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Recommended reading	<table border="1" data-bbox="451 1178 1487 2110"> <tr> <td data-bbox="451 1178 798 2110">Basic literature</td> <td colspan="2" data-bbox="798 1178 1487 2110"> <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> </td> </tr> </table>			Basic literature	<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>				
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	Supplementary literature	Bone Q.M.A., Marshall N.B., 1982. Biology of fishes. Blackie. Glasgow and London Cailliet G.M., Love M.S., Ebeling A.W., 1986. Fishes. Wadsworth Publishing Company, Belmont, California Lagler K.F., Bardach J.E., Miller R.R., May Passino D.R., 1977. Ichthyology. John Willey & Sons. New York, Chichester,
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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