

Subject card

Subject name and code	Biology of Fishes - laboratory exercises, PG_00118086						
Field of study	Oceanography						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
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		11.0		25.0	81
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-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	A review of selected representatives of the Baltic ichthyofauna. The external structure of the fish. General body division. Fins, fin rays, visible elements of sensory organs. Internal structure of the fish: digestive system, endocrine organs associated with the digestive system. Internal structure of the fish: circulatory system, blood circulation, other body fluids. Internal structure of the fish: respiratory system, gills, gas exchange through the skin. Internal structure of the fish: nervous system, brain, spinal cord, eyes. Internal structure of the fish: skeleton, axial skeleton, limb skeleton, bones. Detailed ichthyological analysis. Components, method of execution. Determining the age of fish. Scales, otoliths, fin rays, vertebrae, flat bones. Analysis of fish food. The method of collecting material and performing analyses. Morphometric measurements of fish. Basic methods of statistical analysis of the results obtained.		
Prerequisites and co-requisites	Basic knowledge of zoology		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final test	51.0%	100.0%
Recommended reading	Basic literature Brylińska M., 2000. Ryby słodkowodne Polski. Państwowe Wydawnictwo Naukowe. Warszawa Jasiński A., 1973. Zootomia kręgowców. Państwowe Wydawnictwo Naukowe Klimaj A., Rutkowicz S., 1970. Atlas ryb Północnego Atlantyku. Wydawnictwo Morskie. Gdańsk Rutkowicz S., 1982. Encyklopedia ryb morskich. Wydawnictwo Morskie. Gdańsk Gąsowska M., 1962. Kręglouste i ryby. Państwowe Wydawnictwo Naukowe. Warszawa Grodziński Z., 1981. Anatomia i embriologia ryb. Państwowe Wydawnictwo Rolnicze i Leśne. Warszawa Opuszyński K., 1979. Podstawy biologii ryb. Państwowe Wydawnictwa Rolnicze i Leśne. Warszawa Pliszka F., 1964. Biologia ryb. Państwowe Wydawnictwa Rolnicze i Leśne. Warszawa Suworow E., 1954. Podstawy ichtiologii. Państwowe Wydawnictwo Naukowe. Warszawa		

	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 Wiley & Sons. New York, Chichester,
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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