

Subject card

Subject name and code	Physiology of Algae and Cyanobacteria - laboratory classes, PG_00201271						
Field of study	Aquaculture – Business And Technology						
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	
Mode of study	full-time studies	Mode of delivery				at the university	
Year of study	3	Language of instruction				Polish	
Semester of study	5	ECTS credits				2.0	
Learning profile	practical	Assessment form				credit	
Conducting unit	Department of Marine Ecosystems Functioning -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Iwona Bubak				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	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	30		2.0		18.0	50
Subject objectives	The aim of the course is to familiarise the student with the basic analytical methods and measurement techniques used in the study of cyanobacteria and algal physiology facilitating their growth and physiological processes.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[AKWAL3_W06] has an advanced understanding of techniques, research methods and tools used in aquaculture		Student knows, discusses and correctly uses techniques and tools used in the physiology of cyanobacteria and algae (curriculum content: 1-3).			[SW4] test/exam - oral or written	
	[AKWAL3-U05] can apply basic statistical methods as well as algorithms and computer techniques to describe phenomena and analyze data that are typical in socio-economic activity based on natural sciences		Student is able to apply basic statistical methods and algorithms to describe phenomena and analyze data typical of aquaculture cyanobacteria and algae (curriculum content: 1-3).			[SU2] presentation/project/paper/report	
	[AKWAL3-U02] can make observations and perform simple physical / biological / chemical measurements that are typical in socio-economic activity based on natural sciences		Student is able to carry out observations and perform measurements in the field of physiology of cyanobacteria and algae for business purposes in aquaculture (curriculum content: 1-3).			[SU2] presentation/project/paper/report [SU8] observation of student's independent or team work	
	[AKWAL3-K01] is ready to assess the risks and threats stemming from working in the laboratory and is responsible for the equipment and teaching materials entrusted to them and for the safety of their own work and that of others		Student is prepared to assess the risks and hazards of working in a physiology laboratory when carrying out experiments and responsibly uses the equipment available in the laboratory and provided teaching materials, taking care of his/her own and others' safety (curriculum content: 1-3).			[SK8] observation of student's independent or team work	

Subject contents	<p>1. Methods of measuring algal growth rates and conducting experiments to assess the influence of environmental factors (light, temperature, biogenes, etc.) on biomass growth rates.</p> <p>2. Methods of measuring the photosynthetic activity of cyanobacteria and algae and measuring the rate of primary production.</p> <p>3. Methods for the extraction and characterisation of selected compounds produced by cyanobacteria algae (pigments, lipids, polysaccharides etc.).</p>		
Prerequisites and co-requisites	none		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	observation of individual student work	51.0%	15.0%
	report	51.0%	25.0%
	test	51.0%	60.0%
Recommended reading	Basic literature	<p>1. Zurzycki Jan, Michniewicz Marian (eds.) - Fizjologia roślin, PWRiL, Warszawa, 1985</p> <p>2. Gumiński Stefan - Fizjologia glonów i sinic - Wyd. Uniw. Wrocławskiego, Wrocław, 1990</p> <p>3. Dera Jerzy - Fizyka Morza/Marine physics, PWN/Elsevier, Warszawa/Amsterdam, 1983/1992</p> <p>4. Stryer Lubert - Biochemia, PWN, Warszawa, 1997</p> <p>5. Larkum Anthony, Douglas Susan, Raven John (eds.) Photosynthesis in Algae, Springer Science+Business Media, LLC, 2003</p> <p>6. Szewykowska Alicja Fizjologia roślin, 1997</p>	
	Supplementary literature	<p>1. Renk Henryk - Fotosynteza w Fitoplanktonie Bałtyku, WSP, Słupsk, 1989</p> <p>2. Renk Henryk Produkcja pierwotna południowego Bałtyku MIR, Studia i Materiały, Seria A, Numer 35, Gdynia 2000.</p> <p>3. Salisbury Franck B., Ross Cleon - Fizjologia roślin, PWRiL, Warszawa, 1975</p> <p>4. Schulze E-D. Caldwell M.M. (eds.) - Ecophysiology of Photosynthesis, Springer-Verlag, Berlin, 1994</p> <p>5. Kirk J.T.O. - Light and photosynthesis in aquatic ecosystems, Cambridge Univ. Press, Cambridge, 1983, 1994</p> <p>6. Dring - The biology of marine plants - Cambridge Univ. Press, Cambridge, 1992</p>	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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