University of Gdańsk

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	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. 2. Methods of measuring the photosynthetic activity of cyanobacteria and algae and measuring the rate of primary production. 3. Methods for the extraction and characterisation of selected compounds produced by cyanobacteria algae (pigments, lipids, polysaccharides etc.).	
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	1. Zurzycki Jan, Michniewicz Marian (eds.) - Fizjologia roślin, PWRiL, Warszawa, 1985 2. Gumiński Stefan - Fizjologia glonów i sinic - Wyd. Uniw. Wrocławskiego, Wrocław, 1990 3. Dera Jerzy - Fizyka Morza/Marine physics, PWN/Elsevier, Warszawa/ Amsterdam, 1983/1992 4. Stryer Lubert - Biochemia, PWN, Warszawa, 1997 5. Larkum Anthony, Douglas Susan, Raven John (eds.) Photosynthesis in Algae, Springer Science+Business Media, LLC, 2003 6. Szewykowska Alicja Fizjologia roślin, 1997
	Supplementary literature	1. Renk Henryk - Fotosynteza w Fitoplanktonie Bałtyku, WSP, Słupsk, 1989 2. Renk Henryk Produkcja pierwotna południowego Bałtyku MIR, Studia i Materiały, Seria A, Numer 35, Gdynia 2000. 3. Salisbury Franck B., Ross Cleon - Fizjologia roślin, PWRiL, Warszawa, 1975 4. Schulze E-D. Caldwell M.M. (eds.) - Ecophysiology of Photosynthesis, Springer-Verlag, Berlin, 1994 5. Kirk J.T.O. - Light and photosynthesis in aquatic ecosystems, Cambridge Univ. Press, Cambridge, 1983, 1994 6. Dring - The biology of marine plants - Cambridge Univ. Press, Cambridge, 1992
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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