University of Gdańsk

Subject card

Subject name and code	Basic techniques of isolation and cultivation of algae - laboratory exercises, PG_00075919						
Field of study	Aquaculture – Business And Technology						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2025/2026			
Education level	undergraduate studies		Subject group				
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	2		Language of instruction	Polish			
Semester of study	4		ECTS credits	2.0			
Learning profile	practical		Assessment form				
Conducting unit	Katedra Funkcjonowania Ekosystemów Morskich -> Faculty of Oceanography and Geography						
Name and surname of lecturer (lecturers)	Subject supervisor	dr Filip Pniewski					
	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						
	Additional information: Project method (research project, implementation project, practical project) Performing experiments						
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		10.0	20.0	60	
Subject objectives	The aim of the course is to familiarise students with the practical aspects of isolation techniques and maintenance of algal and cyanobacterial cultures.						

<table>
<tr><td>Learning outcomes</td><td>
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<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[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</td><td>Student is prepared to assess the risks and hazards of working in the algology laboratory and to assess the consequences of mistakes made in the cultivation of cyanobacteria and algae in culture collections; is responsible for the equipment and didactic materials entrusted to him and for the safety of his own work and that of others (topics covered in practical classes).</td><td>[SK8] observation of student's independent or team work</td></tr>
<tr><td>[AKWAL3_W06] knows and discusses techniques, research methods and tools used in aquaculture</td><td>Student knows and discusses techniques and research tools used in the isolation and culturing of cyanobacteria and algae (topics covered in practical classes)</td><td>[SW2] presentation/project/paper/ report</td></tr>
<tr><td>[AKWAL3-U02] can make observations and perform simple physical / biological / chemical measurements that are typical in socio-economic activity based on natural sciences</td><td>Student is able to carry out laboratory experiments using cultures of cyanobacteria and algae in order to characterise them and identify possible economic applications topics covered in practical classes)</td><td>[SU3] text preparation/written work
[SU4] test/exam - oral or written
[SU8] observation of student's independent or team work</td></tr>
<tr><td>[AKWAL3-K05] student is ready to appreciate the practical application of acquired knowledge</td><td>Student is ready to critically evaluate the practical application of the knowledge gained on the isolation, culturing of cyanobacterial and algal strains, and possibilities of biomass processing (topics covered in practical classes)</td><td>[SK8] observation of student's independent or team work</td></tr>
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<tr><td>Subject contents</td><td>1. Isolation of strains of algae and cyanobacteria from natural assemblages of phytoplankton and microphytobenthos assemblages.
2. Establishing cultures of cyanobacteria and algae and monitoring their growth.
3. Selecting appropriate media and growth conditions depending on the purpose of the cultures.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>none</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>observation of independent student work</td><td>100.0%</td><td>15.0%</td></tr>
<tr><td>raport</td><td>51.0%</td><td>25.0%</td></tr>
<tr><td>test</td><td>51.0%</td><td>60.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>1. Richmond, A., 2004, Handbook of microalgal culture. Biotechnology and applied phycology. Blackwell Publishing, Oxford, UK.
2. Anderson R.A., 2005, Algal culturing techniques. Elsevier Academic Press, Oxford, UK.</td></tr>
<tr><td>Supplementary literature</td><td>1. Richmond, A., 2000, Handbook of microalgal mass culture. CRC Press, Baco Raton, Florida.
2. Khanal, S.K., Surampalli, R.Y., Zhang, T.C., Lamsal, B.P., Tyagi, R.D., Kao, C.M., 2010, Bioenergy and biofuel from biowaste and biomass. ASCE, Reston, Virginia.
3. Johansen, M.N., 2012, Microalgae. Biotechnology, microbiology and energy. NOVA Science Publisher INC., New York.
4. Fogg, G.E., Thake, B., 1987, Algal Cultures and Phytoplankton Ecology. The University of Wisconsin Press, Madison, Wisconsin.</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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