University of Gdańsk

Subject card

Subject name and code	Applied Phycology - laboratory classes, PG_00201287		
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 Subject group related to practical vocational preparation
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	1.0	19.0	50

Subject objectives

The aim of the course is to familiarise the student with methods for biochemical characterisation of algal biomass obtained from mass cultures.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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 make observations and simple standard measurements to monitor the growth and characterisation of cyanobacterial and algal biomass for economic purposes (topics covered in exercises)	[SU2] presentation/project/paper/ report
[AKWAL3-K05] student is ready to appreciate the practical application of acquired knowledge	Student is ready to appreciate the practical application of the knowledge acquired in the field of cyanobacteria and algal aquaculture (topics covered in exercises)	[SK8] observation of student's independent or team work
[AKWAL3_W06] has an advanced understanding of techniques, research methods and tools used in aquaculture	Student knows the techniques, methods and research tools used in cyanobacterial and algal aquaculture.	[SW4] test/exam - oral or written

Subject contents

1. Cultivation of microalgae in bioreactors.
2. Preparation of bioreactors for operation, preparation of starting cultures.
3. Characterisation of algal growth, measurement of biomass growth rate, evaluation of production efficiency of selected substances synthesised by algae and cyanobacteria (e.g. pigments, lipids, polysaccharides, etc).

Prerequisites and co-requisites

none

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>observation of the student's independent work</td><td>51.0%</td><td>15.0%</td></tr>
<tr><td>report</td><td>51.0%</td><td>25.0%</td></tr>
<tr><td>test</td><td>51.0%</td><td>60.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Richmond, A., 2004, Handbook of microalgal culture. Biotechnology and applied phycology. Blackwell Publishing, Oxford, UK.
2. Johansen, M.N., 2012, Microalgae. Biotechnology, microbiology and energy. NOVA Science Publisher INC., New York.
3. Richmond, A., 2000, Handbook of microalgal mass culture. CRC Press, Baco Raton, Florida.
4. 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.NOVA Science Publisher INC., New York.</td></tr>
<tr><td>Supplementary literature</td><td>1. Anderson R.A., 2005, Algal culturing techniques. Elsevier Academic Press, Oxford, UK.NOVA Science Publisher INC., New York.
2. 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></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2"></td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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