University of Gdańsk

Subject card

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|---|---|---|---|
| Subject name and code | Physiology of algae and cyanobacteria - laboratory exercises, PG_00075909 | | |
| Field of study | Aquaculture – Business And Technology | | |
| Date of commencement of studies | October 2024 | Academic year of realisation of subject | 2026/2027 |
| Education level | undergraduate studies | Subject group | |
| 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 | |
| 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:
Performing laboratory 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 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] knows and discusses 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<br>[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 | 100.0% | 15.0% |
| report | 51.0% | 25.0% |
| test | 51.0% | 60.0% |

**Recommended reading**

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|---|---|
| Basic literature | 1. Zurzycki Jan, Michniewicz Marian (eds.) - Fizjologia roślin, PWRiL, Warszawa, 1985<br>2. Gumiński Stefan - Fizjologia glonów i sinic - Wyd. Uniw. Wrocławskiego, Wrocław, 1990<br>3. Dera Jerzy - Fizyka Morza/Marine physics, PWN/Elsevier, Warszawa/ Amsterdam, 1983/1992<br>4. Stryer Lubert - Biochemia, PWN, Warszawa, 1997<br>5. Larkum Anthony, Douglas Susan, Raven John (eds.) Photosynthesis in Algae, Springer Science+Business Media, LLC, 2003<br>6. Szewykowska Alicja Fizjologia roślin, 1997 |
| Supplementary literature | 1. Renk Henryk - Fotosynteza w Fitoplanktonie Bałtyku, WSP, Słupsk, 1989<br>2. Renk Henryk Produkcja pierwotna południowego Bałtyku MIR, Studia i Materiały, Seria A, Numer 35, Gdynia 2000.<br>3. Salisbury Franck B., Ross Cleon - Fizjologia roślin, PWRiL, Warszawa, 1975<br>4. Schulze E-D. Caldwell M.M. (eds.) - Ecophysiology of Photosynthesis, Springer-Verlag, Berlin, 1994<br>5. Kirk J.T.O. - Light and photosynthesis in aquatic ecosystems, Cambridge Univ. Press, Cambridge, 1983, 1994<br>6. Dring - The biology of marine plants - Cambridge Univ. Press, Cambridge, 1992 |
| eResources addresses | Adresy na platformie eNauczanie: |

**Example issues/ example questions/ tasks being completed**

**Work placement**

Not applicable

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