

## Subject card

|                                             |                                                                                                                                                                                                                                                                 |                                                          |                                                                                                                                                                                                                         |                                     |         |                                                                                                                      |     |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------|----------------------------------------------------------------------------------------------------------------------|-----|
| Subject name and code                       | Hydrobiology, PG_00103626                                                                                                                                                                                                                                       |                                                          |                                                                                                                                                                                                                         |                                     |         |                                                                                                                      |     |
| Field of study                              | Environmental Protection                                                                                                                                                                                                                                        |                                                          |                                                                                                                                                                                                                         |                                     |         |                                                                                                                      |     |
| Date of commencement of studies             | October 2026                                                                                                                                                                                                                                                    |                                                          | Academic year of realisation of subject                                                                                                                                                                                 |                                     |         | 2026/2027                                                                                                            |     |
| Education level                             | Bachelor's studies                                                                                                                                                                                                                                              |                                                          | Subject group                                                                                                                                                                                                           |                                     |         | Obligatory subject group in the field of study<br>Subject group related to scientific research in the field of study |     |
| Mode of study                               | full-time studies                                                                                                                                                                                                                                               |                                                          | Mode of delivery                                                                                                                                                                                                        |                                     |         | at the university                                                                                                    |     |
| Year of study                               | 1                                                                                                                                                                                                                                                               |                                                          | Language of instruction                                                                                                                                                                                                 |                                     |         | Polish                                                                                                               |     |
| Semester of study                           | 2                                                                                                                                                                                                                                                               |                                                          | ECTS credits                                                                                                                                                                                                            |                                     |         | 2.0                                                                                                                  |     |
| Learning profile                            | academic                                                                                                                                                                                                                                                        |                                                          | Assessment form                                                                                                                                                                                                         |                                     |         | exam                                                                                                                 |     |
| Conducting unit                             |                                                                                                                                                                                                                                                                 |                                                          |                                                                                                                                                                                                                         |                                     |         |                                                                                                                      |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                              |                                                          | dr Justyna Kobos                                                                                                                                                                                                        |                                     |         |                                                                                                                      |     |
|                                             | Teachers                                                                                                                                                                                                                                                        |                                                          |                                                                                                                                                                                                                         |                                     |         |                                                                                                                      |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                     | Lecture                                                  | Tutorial                                                                                                                                                                                                                | Laboratory                          | Project | Seminar                                                                                                              | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                           | 30.0                                                     | 0.0                                                                                                                                                                                                                     | 0.0                                 | 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                                                       |                                                                                                                                                                                                                         | 5.0                                 |         | 15.0                                                                                                                 | 50  |
| Subject objectives                          | The aim of the course is to provide basic concepts and terms in the field of hydrobiology. To learn the ecological specificity of the aquatic environment and the adaptations of living organisms to this environment.                                          |                                                          |                                                                                                                                                                                                                         |                                     |         |                                                                                                                      |     |
| Learning outcomes                           | Course outcome                                                                                                                                                                                                                                                  |                                                          | Subject outcome                                                                                                                                                                                                         |                                     |         | Method of verification                                                                                               |     |
|                                             | [OŚL3_W01] Discusses the basic concepts of mathematics, physics, chemistry and biology. Describes physical, chemical and biological phenomena occurring in nature as well as geological, geomorphological and climatic conditions of the functioning of nature. |                                                          | knows and understands at an advanced level the concepts and processes in the field of physics, chemistry and biology occurring in water, as well as their mutual relationships with regard to organisms living in water |                                     |         | [SW4] test/exam - oral or written                                                                                    |     |
|                                             | [OŚL3_K05] Identifies the level of her/his knowledge and skills, demonstrates the need to update knowledge about the environment and its protection, demonstrates the need for continuous professional training and personal development.                       |                                                          | identifies the level of his/her knowledge and skills, demonstrates the need for continuous training in the field of hydrobiology                                                                                        |                                     |         | [SK1] oral statement/conversation/discussion                                                                         |     |
|                                             | [OŚL3_U09] Prepares in Polish/English a short description of research, observation or problem task carried out during classes using appropriate scientific terminology.                                                                                         |                                                          | is able to prepare a short description of a problem-solving task in the field of hydrobiology discussed during classes using appropriate scientific terminology                                                         |                                     |         | [SU3] text preparation/written work<br>[SU5] implementation of a problem task                                        |     |

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| Subject contents                                               | Lecture topics<br><br>1. Specificity of living conditions in water (impact of physical, chemical, edaphic and biological factors on organisms)<br>2. Biology of aquatic organisms (buoyancy, movement, osmoregulation, respiration, nutrition, reproduction)<br>3. Review and characteristics of ecological formations: plankton, nekton, pleuston, neuston, benthos<br>4. Ecobiological characteristics of the aquatic environment in the scope of basic types of reservoirs<br>5. Shaping of ecological parameters in the littoral, sublittoral, benthic and pelagial<br>6. Basic data on the productivity of aquatic ecosystems<br>7. Problems of contemporary hydrobiology: eutrophication, acidification and saprobization |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                               |
| Prerequisites and co-requisites                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                               |
| Assessment methods and criteria                                | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Passing threshold                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage of the final grade |
|                                                                | exam / test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 51.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 100.0%                        |
| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Plińsk M., 1992, Hydrobiologia ogólna, wyd. Uniwersytet Gdański (i wydania późniejsze)<br><br>Górniak A., Kajak Z., 2019, Hydrobiologia - Limnologia, wyd. PWN<br><br>Odum E., 1982, Podstawy ekologii, PWRiL, Warszawa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                               |
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Żmudziński L., 1974, Świat zwierząt Bałtyku, WSiP<br><br>Thurman U., 1982, Zarys oceanologii, Wydawnictwo Morskie, Gdańsk<br><br>Chojnacki J., 1998, Podstawy ekologii wód, wyd. Akademii Rolniczej w Szczecinie, Szczecin<br><br>Kajak Z., 1998, Hydrobiologia - Limnologia Wyd. Nauk. PWN, Warszawa<br><br>Opuszyński K., 1979, Podstawy biologii ryb, Wyd. PWRiL<br><br>Pliński M., 2008, Biologia organizmów morskich, Wyd. Uniwersytet Gdański, Gdańsk<br><br>Podbielkowski Z., Tomaszewicz H., 1979, Zarys hydrobotaniki, PWN Warszawa<br><br>Polakowska M., 1961, Rośliny wodne - Atlas, Państwowe Zakłady Wydawnictw Szkolnych<br><br>Starmach K., 1973, Wody śródlądowe. Zarys hydrobiologii. Skrypt UJ Kraków |                               |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                               |
| Example issues/<br>example questions/<br>tasks being completed |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                               |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                               |

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