

**Subject card**

|  |  |  |                              |                                     |  |            |     |
|--|--|--|------------------------------|-------------------------------------|--|------------|-----|
| <b>Subject name and code</b>                       | C.elegans in biotechnology, PG_00196937  |  |                              |                                     |  |            |     |
| <b>Field of study</b>                              | Biotechnology  |  |                              |                                     |  |            |     |
| <b>Date of commencement of studies</b>             | October 2026   | <b>Academic year of realisation of subject</b>           |                              |                                     | 2027/2028  |            |     |
| <b>Education level</b>                             | Bachelor's studies   | <b>Subject group</b>                                     |                              |                                     | Obligatory subject group in the field of study<br>Optional subject group<br>Subject group related to scientific research in the field of study |            |     |
| <b>Mode of study</b>                               | full-time studies  | <b>Mode of delivery</b>                                  |                              |                                     | at the university  |            |     |
| <b>Year of study</b>                               | 2  | <b>Language of instruction</b>                           |                              |                                     | Polish   |            |     |
| <b>Semester of study</b>                           | 4  | <b>ECTS credits</b>                                      |                              |                                     | 1.0  |            |     |
| <b>Learning profile</b>                            | academic   | <b>Assessment form</b>                                   |                              |                                     | credit   |            |     |
| <b>Conducting unit</b>                             |  |  |                              |                                     |  |            |     |
| <b>Name and surname of lecturer (lecturers)</b>    | <b>Subject supervisor</b>  |  | dr Marta Krychowiak-Maśnicka |                                     |  |            |     |
|  | <b>Teachers</b>  |  |                              |                                     |  |            |     |
| <b>Lesson types</b>                                | <b>Lesson type</b>   | Lecture  | Tutorial                     | Laboratory                          | Project  | Seminar    | SUM |
|  | <b>Number of study hours</b>   | 0.0  | 0.0                          | 0.0                                 | 0.0  | 12.0       | 12  |
|  | E-learning hours included: 0.0   |  |                              |                                     |  |            |     |
| <b>Learning activity and number of study hours</b> | <b>Learning activity</b>   | Participation in didactic classes included in study plan |                              | Participation in consultation hours |  | Self-study | SUM |
|  | <b>Number of study hours</b>   | 12   |                              | 2.0                                 |  | 11.0       | 25  |
| <b>Subject objectives</b>                          | The objective of the course is to acquaint students with the potential applications of the nematode <i>Caenorhabditis elegans</i> in scientific research and developmental work within biotechnology and related disciplines. Throughout the course, students will apply and advance their knowledge of processes at the cellular, tissue, and organismal levels that are fundamental to the design and execution of experiments employing <i>C. elegans</i> . Furthermore, students will gain an advanced understanding of the models and methodologies utilized in nematode-based research, thereby advancing their comprehension of the molecular foundations of biological phenomena and their broader significance. |  |                              |                                     |  |            |     |

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| Learning outcomes  | Course outcome  | Subject outcome   | Method of verification  |
|  | [BIOTECHL3_W02] The graduate knows and understands at an advanced level selected processes at the cell, tissue, and organism level, important from the biological point of view   | Through the course, the student integrates prior knowledge of biological processes occurring in cells, tissues, and organisms, while acquiring advanced knowledge of these processes in <i>C. elegans</i> . Upon completion of the course, the student is expected to understand the significance of these processes for the planning and execution of biological experiments.  | [SW1] oral statement/<br>conversation/discussion<br>[SW2] presentation/project/paper/<br>report |
|  | [BIOTECHL3_W01] The graduate possesses structured and advanced knowledge of biological phenomena at the molecular level and understands their importance for biotechnology.   | Upon completion of the course, the student is expected to demonstrate advanced knowledge of molecular phenomena occurring in the cells and tissues of <i>C. elegans</i> , the understanding of which is essential for the design and execution of experiments using this model organism. The student is also expected to be able to apply this knowledge in developing biotechnological solutions to research problems. | [SW5] implementation of a problem task  |
| Subject contents   | During the course, topics will be addressed concerning the use of <i>C. elegans</i> as a model organism in research, including genetics and cell biology, toxicology and drug development, host-microorganism interactions, as well as studies on neurodegenerative diseases.             |   |   |
| Prerequisites and co-requisites                                | <ul style="list-style-type: none"> <li>• cell biology</li> <li>• molecular biology</li> <li>• english</li> </ul>  |   |   |
| Assessment methods and criteria                                | Subject passing criteria  | Passing threshold   | Percentage of the final grade   |
|  | oral presentation and discussion  | 51.0%   | 50.0%   |
|  | presentation preparation  | 51.0%   | 50.0%   |
| Recommended reading  | Basic literature  | <a href="https://wormbook.org/">https://wormbook.org/</a><br><br><a href="https://www.wormatlas.org/">https://www.wormatlas.org/</a><br><br><a href="https://wormbase.org/#012-34-5">https://wormbase.org/#012-34-5</a><br><br>scientific publications recommended during the course by the instructor  |   |
|  | Supplementary literature  | scientific publications recommended during the course by the instructor   |   |
|  | eResources addresses  |   |   |
| Example issues/<br>example questions/<br>tasks being completed | <ul style="list-style-type: none"> <li>• genetic and phenotypic determinants of locomotion</li> <li>• fat metabolism in the regulation of satiety behavior</li> <li>• stress-induced apoptosis of germ cells</li> <li>• beta-amyloid toxicity and screening of potential drugs</li> </ul> |   |   |
| Work placement   | Not applicable  |   |   |

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