

## Subject card

|   |   |  |  |                                     |  |                                   |     |
|---|---|--|--|-------------------------------------|--|-----------------------------------|-----|
| Subject name and code                       | Bioorganic chemistry, PG_00054415   |  |  |                                     |  |                                   |     |
| Field of study                              | Chemistry   |  |  |                                     |  |                                   |     |
| Date of commencement of studies             | October 2024  | Academic year of realisation of subject                  |  |                                     | 2024/2025                                      |                                   |     |
| Education level                             | postgraduate studies  | Subject group  |  |                                     | Obligatory subject group 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<br>polish                               |                                   |     |
| Semester of study                           | 1   | ECTS credits   |  |                                     | 2.0  |                                   |     |
| Learning profile                            | academic  | Assessment form  |  |                                     |  |                                   |     |
| Conducting unit                             | Pracownia Chemii Bioorganicznej -> Katedra Biochemii Molekularnej -> Faculty of Chemistry   |  |  |                                     |  |                                   |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor  |  | dr hab. Anna Łęgowska  |                                     |  |                                   |     |
|   | Teachers  |  | dr inż. Irena Bylińska   |                                     |  |                                   |     |
| Lesson types                                | Lesson type   | Lecture  | Tutorial   | Laboratory                          | Project  | Seminar                           | SUM |
|   | Number of study hours   | 15.0   | 0.0  | 0.0                                 | 0.0  | 0.0                               | 15  |
|   | 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   | 15   |  | 2.0                                 |  | 33.0                              | 50  |
| Subject objectives                          | <p>to acquaint students with all issues mentioned in the course contents.</p> <p>to introduce students to the basic groups of natural organic compounds, learning about their structure and biological activity</p> |  |  |                                     |  |                                   |     |
| Learning outcomes                           | Course outcome  |  | Subject outcome  |                                     |  | Method of verification            |     |
|   | [CHEMMU2_W04] Applies the acquired knowledge to an in-depth description of the properties of chemical connections, methods of their synthesis and analysis.   |  | Providing definitions and presenting chemical structures of alkaloids, steroids, vitamins. Describing biological activity of natural products. Identifying non-proteinogenic amino acids, including antimetabolites.   |                                     |  | [SW4] test/exam - oral or written |     |
|   | [CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied.  |  | Providing examples of biosynthesis of short peptides containing non-proteinogenic amino acids. Understanding the influence of natural compounds on processes occurring in living organisms. Explaining the definition of peptide toxins                      |                                     |  | [SW4] test/exam - oral or written |     |
|   | [CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.   |  | Being aware of the need for continuous self-education, Understanding the need for systematic learning, Showing critical thinking when accepting information, especially easily available in mass media Being aware of the need for objective self-assessment |                                     |  | [SK4] test/exam - oral or written |     |

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| Subject contents   | Structure and biological function of selected groups of organic compounds of natural origin: alkaloids, steroids, vitamins. Natural non protein amino acids, occurrence and biological functions. Plant and animal toxins. Non-ribosomal peptide synthesis. |  |                               |
| Prerequisites and co-requisites                                | organic chemistry (bachelor degree)   |  |                               |
| Assessment methods and criteria                                | Subject passing criteria  | Passing threshold  | Percentage of the final grade |
|  | written exam requiring answers to 4-6 questions, duration 1,5 hours   | 51.0%  | 100.0%                        |
| Recommended reading  | Basic literature  | <p>A. Kołodziejczyk Naturalne związki organiczne</p> <p>P. Moszczyński, R. Pyć Biochemia witamin</p> |                               |
|  | Supplementary literature  | <p>I.T. Timbrell Paradoks trucizn</p> <p>academic textbooks for bioorganic chemistry</p>             |                               |
|  | eResources addresses  | Adresy na platformie eNauczanie:   |                               |
| Example issues/<br>example questions/<br>tasks being completed | <p>Present the structure and biological functions of steroid compounds biosynthesized in the liver.</p> <p>Draw the general structural formula of tocopherols and discuss the roles they play in the human body.</p>  |  |                               |
| Work placement   | Not applicable  |  |                               |

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