

## Subject card

|                                             |                                                                                                                                                                                                                                                    |                                                          |                                         |                                     |                                                                                                                                                |            |     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Bacterial diagnostic, PG_00154544                                                                                                                                                                                                                  |                                                          |                                         |                                     |                                                                                                                                                |            |     |
| Field of study                              | Medical Biology                                                                                                                                                                                                                                    |                                                          |                                         |                                     |                                                                                                                                                |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                                                                       |                                                          | Academic year of realisation of subject |                                     | 2026/2027                                                                                                                                      |            |     |
| Education level                             | Bachelor's studies                                                                                                                                                                                                                                 |                                                          | Subject group                           |                                     | Obligatory subject group in the field of study<br>Optional subject group<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                               | 2                                                                                                                                                                                                                                                  |                                                          | Language of instruction                 |                                     | Polish                                                                                                                                         |            |     |
| Semester of study                           | 3                                                                                                                                                                                                                                                  |                                                          | ECTS credits                            |                                     | 2.0                                                                                                                                            |            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                           |                                                          | Assessment form                         |                                     | credit                                                                                                                                         |            |     |
| Conducting unit                             | Laboratory of Molecular Evolution and Bioinformatics -> Department of Evolutionary Genetics and Biosystematics -> Faculty of Biology -> Rector                                                                                                     |                                                          |                                         |                                     |                                                                                                                                                |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                 |                                                          | dr Agata Jurczak-Kurek                  |                                     |                                                                                                                                                |            |     |
|                                             | 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                                                       |                                         | 6.0                                 |                                                                                                                                                | 14.0       | 50  |
| Subject objectives                          | To learn the principles of work in a bacteriological laboratory. To familiarize students with the methods of isolation of bacteria and methods of identification of more important groups of bacteria and assessment of their drug susceptibility. |                                                          |                                         |                                     |                                                                                                                                                |            |     |

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| Learning outcomes               | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Subject outcome                                                                                                                                                                          | Method of verification                                                                                                                       |
|                                 | [BIOLMEDL3_K05] jest odpowiedzialny za bezpieczeństwo pracy własnej i innych oraz potrafi rozpoznać sytuacje zagrożenia i podjąć odpowiednie działania                                                                                                                                                                                                                                                                                                                                                               | While working in the microbiology laboratory, the student is responsible for the safety of himself and others and is able to recognize risk situations and take appropriate action       | [SK8] observation of student's independent or team work                                                                                      |
|                                 | [BIOLMEDL3_U03] performs simple tasks or research expertise typical of medical biology under the guidance of a supervisor                                                                                                                                                                                                                                                                                                                                                                                            | The student, under the guidance of a research supervisor, performs simple tasks and expertise research typical of medical microbiology                                                   | [SU5] implementation of a problem task<br>[SU6] demonstration of practical skills<br>[SU8] observation of student's independent or team work |
|                                 | [BIOLMEDL3_W16] explains the theoretical basis of experimental methods and lists the most important techniques of biological sciences that can be applied to medical biology and diagnostics                                                                                                                                                                                                                                                                                                                         | The student explains the theoretical basis of experimental methods and lists the most important techniques that can be applied to bacteriological diagnosis                              | [SW1] oral statement/<br>conversation/discussion<br>[SW3] text preparation/written work                                                      |
|                                 | [BIOLMEDL3_W07] has advanced knowledge of medical biology and is familiar with the health sciences terminology                                                                                                                                                                                                                                                                                                                                                                                                       | The student has advanced knowledge of clinical microbiology and is familiar with its terminology                                                                                         | [SW1] oral statement/<br>conversation/discussion<br>[SW3] text preparation/written work                                                      |
|                                 | [BIOLMEDL3_W11] posiada zaawansowaną wiedzę dotyczącą metod oceny stanu zdrowia oraz objawów i przyczyn wybranych zaburzeń i zmian chorobowych oraz zna podstawy zdrowego trybu życia, potrafi je uzasadnić i promować                                                                                                                                                                                                                                                                                               | The student has advanced knowledge of methods of identifying bacteria and the lesions caused by them                                                                                     | [SW1] oral statement/<br>conversation/discussion<br>[SW3] text preparation/written work                                                      |
| Subject contents                | Principles of health and safety in the microbiology laboratory. Sterilization techniques and principles of aseptics. Techniques of culture microorganisms, microbiological media. Methods of determining bacterial susceptibility to antibiotics and bacterial mechanisms of drug resistance. Antibigram and its interpretation. Differentiation of selected bacteria constituting the physiological microbiota and bacteria pathogenic to humans using microscopic, biochemical, serological and molecular methods. |                                                                                                                                                                                          |                                                                                                                                              |
| Prerequisites and co-requisites | Completed basic microbiology course.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                          |                                                                                                                                              |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Passing threshold                                                                                                                                                                        | Percentage of the final grade                                                                                                                |
|                                 | Final grade based on: - partial grades (tests) (40%) - individual student work (practice) (60%)                                                                                                                                                                                                                                                                                                                                                                                                                      | 51.0%                                                                                                                                                                                    | 100.0%                                                                                                                                       |
| Recommended reading             | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1. Szweczyk E.M. Diagnostyka bakteriologiczna. Wyd. Naukowe PWN, Warszawa 2020<br><br>2. Irving W., Boswell T., Ala'Aldeen D. Mikrobiologia medyczna. Wyd. Naukowe PWN, Warszawa 2012    |                                                                                                                                              |
|                                 | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1. Salyer A.A., Whitt D.D. Mikrobiologia. Wyd. Naukowe PWN, Warszawa 2005<br><br>2. Tille P.M. Bailey & Scott's diagnostic microbiology. Fourteenth edition. Elsevier 2017               |                                                                                                                                              |
|                                 | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                          |                                                                                                                                              |
|                                 | Example issues/<br>example questions/<br>tasks being completed                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1. What phenotypic methods identify coagulase-negative <i>Staphylococcus</i> species?<br><br>2. Which species of pathogenic <i>Enterobacterales</i> show abnormal growth on solid media? |                                                                                                                                              |
| Work placement                  | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                          |                                                                                                                                              |

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