GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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| Subject name and code | Pharmaceutical Biotechnology–Team Project, PG_00058621 | | |
| Field of study | Biotechnology | | |
| Date of commencement of studies | October 2022 | Academic year of realisation of subject | 2023/2024 |
| Education level | second-cycle studies | Subject group | 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 | 4.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr hab. inż. Iwona Gabriel | |
| | Teachers | dr hab. inż. Iwona Gabriel | |

| Lesson types and methods of instruction | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 0.0 | 30.0 | 30.0 | 0.0 | 60 |
| | E-learning hours included: 0.0 | | | | | | |

| Learning activity and number of study hours | | | | | |
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| | Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM |
| | Number of study hours | 60 | 5.0 | 35.0 | 100 |

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| Subject objectives | Developing a plan and schedule for implementing a multi-stage research project, solving the research problem and presenting the results obtained. |

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| Learning outcomes | Course outcome | Subject outcome | Method of verification |
| | [K7_W02] has advanced knowledge of structure and activity of enzymes and biologically active compounds also in pharmacological context, knows basic instrumental methods of qualitative and quantitative analysis and activity studies of biomolecules | The student has extended and in-depth knowledge of chemical synthesis methods, verification of the efficiency of synthesis stages and determination of the purity of the obtained compounds. The student is able to determine the biological activity of the tested compound. | [SW3] Assessment of knowledge contained in written work and projects<br>[SW2] Assessment of knowledge contained in presentation<br>[SW1] Assessment of factual knowledge |
| | [K7_U02] has practical skills in commonly used biochemical methods including enzyme activity and kinetics assays, electrophoresis, western blotting, ELISA assays, fluorescence microscopy, flow cytometry | The student is able to use his knowledge of experimental methods and techniques to effectively perform planned research tasks. | [SU4] Assessment of ability to use methods and tools<br>[SU3] Assessment of ability to use knowledge gained from the subject |
| | [K7_U08] can analyze patent documents, can make a preliminary assessment of the patentability of a product, process or substance, can use patent databases | The student presents the obtained results and presents the resulting conclusions. | [SU3] Assessment of ability to use knowledge gained from the subject<br>[SU4] Assessment of ability to use methods and tools<br>[SU2] Assessment of ability to analyse information |
| | [K7_U07] is able to consider bioethical issues and regulations in research planning and design of biotechnological products and processes | The student knows bioethical problems and regulations in planning research using microorganisms. | [SU3] Assessment of ability to use knowledge gained from the subject<br>[SU2] Assessment of ability to analyse information |
| | [K7_K04] is aware of the need to solve problems and perform tasks, independently formulate questions to solve a given problem or task; is able to plan the execution of a larger task by dividing it into partial tasks and draw up an appropriate schedule | The student is able to propose a plan for the synthesis of a biologically active compound and methods for determining its antimicrobial activity. | [SK5] Assessment of ability to solve problems that arise in practice<br>[SK2] Assessment of progress of work<br>[SK1] Assessment of group work skills |
| Subject contents | The project group is divided into executive groups of 3-4 students. At the beginning of the project classes, the student group receives a project topic regarding the synthesis and testing of the antimicrobial activity of sulfonamide derivatives. Then, students group conducts a literature analysis and a review of relevant databases, formulates a concept for solving the problem and prepares a research schedule. During laboratory classes, the student group performs experiments according to a developed schedule. Laboratory classes end with the preparation and presentation of a report on the implementation of the project. The second part of the design classes includes the analysis of patent documents, a preliminary assessment of the patentability of the selected product and the preparation of a patent application. | | |
| Prerequisites and co-requisites | Knowledge of issues in the field of Biochemistry, Enzymology, Drug Biotechnology | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Assessment of a patent application | 50.0% | 30.0% |
| | final report | 50.0% | 40.0% |
| | Assessment of a group project | 50.0% | 30.0% |
| Recommended reading | Basic literature | Supporting materials available on the department home page | |
| | Supplementary literature | None | |
| | eResources addresses | Adresy na platformie eNauczanie:<br>Biotechnologia Leków II - 2023 - Moodle ID: 14874<br>https://enauczanie.pg.edu.pl/moodle/course/view.php?id=14874 | |
| Example issues/ example questions/ tasks being completed | How determine the minimum inhibitory concentration (MIC)?<br><br>List the classes of sulfonamides.<br><br>What is the mechanism of action of sulfadiazine? | | |
| Work placement | Not applicable | | |