



Subject card

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|---|--|--|---|-------------------------------------|--|------------|-----|
| Subject name and code | Fundamentals of Programming, PG_00058233 | | | | | | |
| Field of study | Biotechnology | | | | | | |
| Date of commencement of studies | October 2022 | | Academic year of realisation of subject | | 2022/2023 | | |
| Education level | second-cycle 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 | | |
| Semester of study | 2 | | ECTS credits | | 1.0 | | |
| 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. Marek Wojciechowski | | | | |
| | Teachers | | dr hab. inż. Marek Wojciechowski | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 0.0 | 15.0 | 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 | | 3.0 | | 7.0 | 25 |
| Subject objectives | The aim of the course is to familiarize students with the basics of programming and good programming practices. During the classes, students learn how to prepare an algorithm that can be later encoded in a specific programming language.. Students learn to work in an integrated development environment (IDE) and to use this environment to identify and correct errors in created programs. As part of the course, students write simple programs to help solve bioinformatics problems. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K7_U06] is able to apply statistical methods, computer solutions, especially bioinformatics methods to design experiments and technologies, analyze experimental results and technological processes and solve and technological processes and solve problems in the field of biotechnology, is able to use biotechnological databases | | Student knows how to present a solution to a given problem in the form of an algorithm and is able to write it as a program in the Python programming language; The student is able to test the correctness of the program and detect and eliminate any errors. | | [SU1] Assessment of task fulfilment | | |
| | [K7_W04] has a structured knowledge of the application of informatics tools in biotechnology and molecular modeling of biomolecules | | The student has knowledge about the use of programming tools in solving various engineering problems, in particular, student has extended knowledge about the use of programming in solving issues in the field of biotechnology and molecular biology | | [SW3] Assessment of knowledge contained in written work and projects | | |
| | [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 | | Student is able to divide a given problem into logical parts/stages and design appropriate functions and data structures to solve the problem | | [SK5] Assessment of ability to solve problems that arise in practice | | |
| Subject contents | The basics of programming. Structured and object-oriented programming. Python programming basics. Using libraries, in particular the Biopython library to perform specific bioinformatics tasks | | | | | | |

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| Prerequisites and co-requisites | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | practical project | 60.0% | 100.0% |
| Recommended reading | Basic literature | Learning Python, 5th Edition, Mark Lutz, 2022, O'Reilly | |
| | Supplementary literature | Educational materials provided by the lecturer | |
| | | Dive into python http://wikobooks.org | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | preparation of a python script for basic protein structure analysis based on the PDB files | | |
| Work placement | Not applicable | | |