

1.	Field of study	Biotechnology
2.	Faculty	Faculty of Natural Sciences
3.	Academic year of entry	2025/2026 (winter term)
4.	Level of qualifications/degree	first-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time
7.	ISCED code	0511 (Biology)
8.	Number of semesters	6
9.	Degree	licencjat (Bachelor's Degree)
10.	General characteristics of the field of study and the assumed concept of education	<p>The study programme for the biotechnology major is by PRK level: level 6 of the Polish Qualification Framework. The study programme participant realizes and fulfils the directional learning outcomes related to the discipline of biological sciences, to which the major is assigned, and acquires advanced learning from the area of natural sciences and science and technology. The selection of the critical obligatory learning contents is closely related to the directional learning outcomes. From the academic year 2023/24 onwards, students in this and other fields of study at the University will have the unique nationwide opportunity to choose some subjects from all disciplines represented at the University of Silesia. The study programme implements general effects of a supportive, auxiliary nature, which significantly supports or improves the directional education (e.g. knowledge of a foreign language, knowledge of intellectual property protection or numerous social competencies derived from the leading discipline), supports the top domain and can be assigned to it. The opportunity for students to enhance their humanities and social sciences competencies is realized through the subjects: Entrepreneurship and an elective module from the area of Creative Expression and Critical Thinking. In addition, issues from the Open Module Offer (OOM) have been introduced, which can be taught in Polish and English. The curriculum of the Biotechnology degree programme has elements of areas supporting directional education. These elective areas are Digital World, Health and Personal Development, Environment and Technology, Civil Society and Entrepreneurship. The timetable for the first two semesters of study, among the compulsory and elective subjects, includes subjects giving knowledge of chemistry, structural biochemistry, mathematics and biology, expanded especially with elements of genetics and cell biology. Fundamental issues were introduced in the biotechnology workshop, such as In Vitro Cultures in Biotechnology, UV/VIS Spectrophotometry with Elements of Good Laboratory Practice and Fundamentals of Microscopy. The first semester they also introduced the unique subject Plan Your Educational Pathway, which aims to familiarise students with the research carried out by teaching biotechnology.</p> <p>This is intended to increase students' awareness and responsibility for shaping their career path from the beginning of their studies. In subsequent semesters, subjects such as Microbiology, Metabolism, Plant Physiology with Elements of Biotechnology or Outline of Animal Physiology, Molecular Mechanisms of Plant Development, and Molecular Mechanisms of Animal and Human Development provide the necessary biological knowledge of the discipline, which is then used in subjects combining knowledge from different areas of biotechnology: Molecular Genetics, Genetic Engineering, Bioprocess Engineering, Generative Plant Reproduction and Experimental Embryology or Biotechnological Methods Applied to Environmental Protection. Students acquire knowledge, skills and competencies by participating in optional subjects. In the first semester, these subjects are propaedeutic; in subsequent semesters, the proportion of biotechnological content increases. It is worth mentioning here the elective subject Biotechnology in practice, during which students undertake study visits to familiarise themselves with the business profiles of biotechnology companies in the region. Optional subjects include Tutor Project I and Project Work, whose topics strictly depend on the student's choice. Other optional issues allow biotechnology students to learn about processes and technologies at an advanced level, e.g. Enzymology, Continuous cultures in biotechnology, Mutagenesis, Histological techniques, Instrumental analysis in environmental biotechnology; application in biotechnology of elements of nature, e.g. Fundamentals of nanobiotechnology, Toxicology, Xenobiotics in the environment, Plant resistance, Utility plants, Animals in research procedures; as well as biotechnological information technologies: Fundamentals of Bioinformatics.</p>
11.	Information on the relationship	

	<p>between the studies and the university's strategy as well as the socio-economic needs that determine the conduct of studies and the compliance of learning outcomes with these needs</p>	<p>Education in biotechnology studies coincides with the operational goals outlined in the University of Silesia's development strategy by 1. modifying the educational offer considering forecasts for the development of higher education. 2. linking the educational offer with the socio-economic environment; 3. internationalisation of education; 4. individualisation of teaching; 5. project activities; 6. dissemination of modern, interactive educational methods. The Bachelor's degree Biotechnology faculty envisages an education that enables students to be involved in all areas related to employee research. This is realised not only through a wide range of subjects from different disciplines, such as biological, chemical, physical and mathematical sciences, computer science and environmental and bioprocess engineering but also through the possibility of directly putting students to work in research projects, in the form of offered elective subjects or a bachelor's thesis carried out with the socio-economic environment. In 2022, the faculty received a positive assessment from the State Accreditation Commission. The educational programme offered by the faculty is dynamically modified and updated to keep up with the expectations of the local and global labour market as much as possible. This is possible thanks to active cooperation with the environment, especially with employers from the broadly defined biotechnology sector. One manifestation of such collaboration is the programme of compulsory work placements for students and voluntary internships. The course curriculum is consulted with employers, who are also invited to teach, e.g. during meetings with representatives of the Council of Economic and Social Partners. The high quality of the education offered is fostered by its close connection with the scientific research conducted at the Institute of Biology, Biotechnology and Environmental Protection, many of which represent the international level. The internationalisation of the faculty is realised by introducing subjects taught in Polish and English, which increases student exchange and the teaching offer available to Erasmus+ and other students. As external funding is obtained from programmes such as JUWM (One University Many Possibilities), renowned foreign lecturers are also invited to collaborate, which broadens the teaching offer of the faculty and, at the same time, promotes and opens the staff and students of the Biotechnology faculty to collaboration with leading foreign centres. Internationalisation and mobility in the educational process involve outgoing and incoming students and academic staff to/from several European universities. The individualisation of teaching in the Biotechnology faculty is realised in many forms. This is ensured by small teaching groups of 8-10 students. In addition, during the study, the student may enter an individual study path available to particularly outstanding students. The student also has the opportunity to choose a tutoring course from the range of subjects on offer, during which they are given individual research and teaching supervision. The individualisation of the development path may also be realised by choosing a topic dedicated to project work, where, individually, under the supervision of a research project manager, the student learns the secrets of conducting scientific research. Project activities, which allow students to participate independently and creatively, are implemented not only as an additional element of course subjects but also as a subject dedicated to problem and project activities. This offer shapes self-development and attitudes related to responsibility and cooperation in a group. Notably, less than 20 per cent of the teaching is conducted in the form of lectures. The remainder is mainly filled with practical laboratory classes in the institute's research laboratories, during which students acquire the competencies to work in modern laboratories. Working with large amounts of experimental data, the need to sort, verify and store them, and learning to program and use bioinformatics data enhance students' digital competencies. In addition to basic training methods, the teaching offer includes subjects delivered in modern, interactive, engaging ways, including the gamification method. Continuous enhancement of the quality of education is achieved, among other things, through the development of the teaching competencies of academic staff and an internal system of educational quality assurance. A valuable contribution to enhancing the quality of education is also provided by practical support for the standard teaching offered through projects funded by the European Social Fund. The training in Biotechnology directs students' attention towards caring for the harmonious and sustainable development of man and nature with the use of modern technologies to counteract environmental pollution and unfavourable climate change, based on the latest developments in biotechnology and the study of the fundamental properties of nature, and therefore fits in perfectly with the Priority Research Areas (POB). From the academic year 2023/24, students of Biotechnology, together with students of the other faculties offered at the University of Silesia, will receive an exceptional education related to the introduction of content and methods about disciplines other than biological sciences into the curriculum, thus becoming people prepared to cooperate in environments with diverse professional competences.</p>
12.	Specializations	n/a
13.	General description of the specialization	

14.	The semester from which the specializations starts	n/a
15.	Percentage of the ECTS credits for each of the scientific or artistic disciplines to which the learning outcomes are related to the total number of ECTS credits (along with the indication of the leading discipline)	<ul style="list-style-type: none"> <i>[leading discipline]</i> biological sciences (natural sciences): 100%
16.	Number of ECTS credits required to achieve the qualification equivalent to the level of study	180
17.	Percentage of the ECTS credits for optional modules in relation to the total number of ECTS credits	32%
18.	Total number of ECTS credits that a student must obtain in the modules taught	137
19.	Number of ECTS credits that a student must obtain in modules assigned to disciplines within the humanities or social sciences (not less than 5 ECTS) - in the case of fields of study assigned to disciplines within the fields other than, respectively, humanities or social sciences	6
20.	Number of ECTS credits - higher than 50% of the total number of credits - that a student must obtain: <ul style="list-style-type: none"> in general university programmes within a module connected with research carried out in the scientific or artistic disciplines to develop his/her knowledge and research skills; in practical programmes within a module to develop practical skills 	153
21.	Total number of ECTS credits that a student must obtain in internships	4
22.	Internships (hours and conditions) in the case of practical programmes and in general university programme - if such requires internship	Internships are an integral part of the study program, carried out by students in individual fields, levels, profiles and forms of study. Internships are to help in confronting the knowledge acquired during studies with the requirements of the labour market, acquiring skills useful in the profession, learning about practical issues related to working in positions for which the student is prepared during the course of studies. The internship is to familiarize the student with professional language relevant to a specific industry and work culture.

		<p>The rules for the organization of internships are set out in the Rector's ordinance. Detailed rules of apprenticeship taking into account the specifics of particular fields of study are set out in the field's of study apprenticeship regulations, in particular: learning outcomes assumed to be achieved by the student during the apprenticeship, framework apprenticeship program including a description of issues, dimension of apprenticeship (number of weeks of practice); form of internship (continuous, mid-year), criteria for choosing the place of internship, obligations of the student staying in the internship, obligations of the academic tutor, conditions for completing the internship by the student and conditions for exemption from the internship obligation in whole or in part.</p> <p>The number of ECTS and the number of hours are specified in the course structure.</p>
23.	Graduation requirements	<p>The condition for admission to the diploma examination is to achieve the learning outcomes provided for in the study program, to obtain a certificate of an appropriate level of language proficiency in a foreign language and to obtain positive grades for the diploma dissertation. The condition for graduation is to pass the diploma examination with at least a satisfactory result. A graduate receives a higher education diploma confirming obtaining the qualifications of the appropriate degree.</p> <p>Detailed rules of the diploma process and the requirements for the diploma thesis are set out in the Rules and Regulations of Studies at the University of Silesia and the diploma regulations.</p>