APPLICATION

Study field "Wildlife Sciences" for assessment

Study field	*Wildlife Sciences*
Title of the higher education institution	*Daugavpils Universitāte*
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Self-evaluation report

Study field "Wildlife Sciences"

University of Daugavpils

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1. Information on the Higher Education Institution/College

1.1. Basic information on the higher education institution/ college and its strategic development fields,.

Brief characteristics of Daugavpils University

Daugavpils University (henceforth – DU) is a significant centre of science and education in Daugavpils and East Latvia. DU is a modern science-based university that offers high quality education, prepares highly qualified specialists and professionals, greatly contributes to science innovation and transfer of scientific ideas to broader public and national economy. DU is the only university in Latgale that performs the functions of the driving force for the development of the region of East Latvia and its adjacent territories, it concentrates major intellectual and technical resources in the region. DU has gained international recognition by joining the European University Association, European International Studies Association, European Union Universities of Small States Association, and European Science Events Association.

Daugavpils University mission and vision

DU mission: to contribute to the development of sustainable future society by implementing scientific research on an international level and ensuring high quality education in the fields of natural, engineering, education, health, humanities and social sciences, thus promoting the sustainable development of Latgale region and the whole country.

DU vision: In 2030 DU is a modern scientific university that offers high quality education and conducts important scientific work. The quality of the University work and its reputation in Latvia and all over the world has provided the basis for its growth and stability. DU has become a driving force of the educational, scientific, innovation and business development in Eastern Latvia. DU functions as an excellence centre in the fields of mathematics, physics, nano-materials, material engineering, biology, regional studies, literature, art, and education science. DU accumulates, preserves, and maintains regional knowledge and contributes greatly to the regional development.

Main objectives of DU activity:

1. to act as a regional university in the spheres of natural sciences, humanities, education and social sciences creating opportunities for diversified high quality studies and research;
2. to provide high quality study programmes and conduct research in compliance with the dynamics of labour market demands and needs of the community;
3. to create opportunities for enhancing the professional mobility of the population by developing further education;
4. to develop personality capable of analytical thinking, critical perception, and creative processing of information, who can, due to the acquired education, contribute to the development of the state and region of Latvia and the welfare of the population;
5. to preserve and develop Latvian national identity and culture legacy, simultaneously entering international integration;
6. to implement interior quality provision systems that build policy and procedures for the provision of the higher education quality.

DU strategic specialization areas

According to the order of the Cabinet of Ministers of June 21, 2022 no. 449 "On strategic

specialization of state HEI", three areas of strategic specialization are defined in DU:

- natural sciences;
- social sciences;
- humanities and art.

DU, implementing its studies and research activities in accordance with the areas of strategic specialization defined for it in Paragraph 1 of this order, implements interdisciplinary studies, research and innovations, as well as cooperation with the business sector.

The university has the right to implement study programs and research activities also outside the initial areas of strategic specialization specified in this order, in accordance with Article 4 of the Act on HEI.

Implemented study directions and the number of study programmes within them

Study process at DU is implemented in 16 study directions: "Education, pedagogy, and sports" (8 study programmes), "Art" (6 study programmes), "History and philosophy " (3 study programmes), "Language and culture studies, native language studies and language programmes " (7 study programmes), "Translation" (1 study programme), "Psychology" (3 study programmes), "Economics" (3 study programmes), "Management, administration, and real estate management" (3 study programmes), "Law" (3 study programmes), "Life sciences" (3 study programmes), " Chemistry, Chemical Technologies and Biotechnologies" (2 study programmes), "Physics, material science, mathematics, and statistics" (5 study programmes), "Information technologies, computer technology, electronics, telecommunications, computer management, and computer science" (3 study programmes), "Health care" (2 study programme), "Environment protection" (2 study programmes), " Internal Security and Civil Protection " (3 study programmes).

The dynamics of student number at Daugavpils University in the period of assessment

In accordance with the Ministry of Education and Science “Survey of higher education in Latvia in 2020” (available in Latvian)[1], DU occupies 7th place among Latvian higher education institutions as to the number of students. DU provides higher education not only to East Latvia region represented by the majority of DU students but to other regions of Latvia and labour market of foreign countries.

Assessment of the dynamics of the student number in the time period from 2017 to 2022 (Figure 1) leads to a conclusion that the number of students at DU has remained steady and even increased during the last two years, despite the long-term decline and emigration of the population in Latgale and Latvia. According to the informative material “Summary: Economic and labor market trends”, in the following years the number of the population of Latvia will keep diminishing (available in Latvian)[2]. The main reasons of this process include aging of the society, durably low birth rate and emigration of the population (available in Latvian)[3]. Due to economic reasons, more and more secondary school leavers choose to study or get employed outside Latvia, therefore state funded budget places are not filled and the fall of the number of students concerns almost all higher education institutions (available in Latvian)[4].

In order to attract students in the current conditions, Daugavpils University is developing new competitive study programmes, for example, in 2021, one of such study programmes was the professional Bachelor’s study programme “Nursing”, in turn, in 2022 – professional Master’s study programme “Economic security”.

Enlarging of the number of foreign students is one of the priority goals of DU. For the purpose of internationalization of studies, 26 study programmes are offered in English. In the time period from 2017 to 2022, there were 615 students from abroad at DU. Most of foreign students at DU are

citizens of Russia, Uzbekistan, Kazakhstan, Tajikistan, Belarus, China, USA, Israel, Finland, Italy, Ukraine, Philippines, Indonesia, etc. 3 – 4 times a year DU representative participate in higher education exhibitions in Belarus, Uzbekistan, Kazakhstan, as well as cooperate with higher education institutions and education institutions in foreign countries to inform of the current offer of study programmes, establish contacts with foreign universities for elaboration of joint programmes, to facilitate the attracting of foreign students and the academic staff.

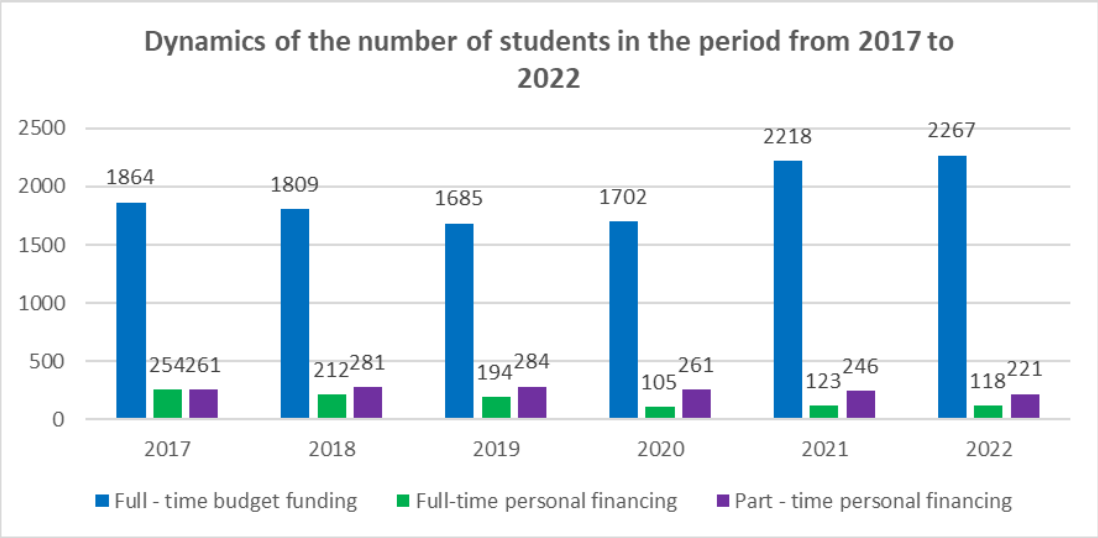

Figure 1. Dynamics of the number of students in the period from 2017 to 2022. Displayed data for October 1 of the respective year.

Daugavpils University development strategy major goals and activity directions

DU development goals are envisaged by "Daugavpils University development strategy for 2015-2020" (henceforth – Strategy)[5] (available in Latvian). The summary of the strategy in English can be seen here[6]

Based on letter No. 4-10e/21/99 "On Development Strategies of Institutions" issued by the Ministry of Education and Science on 11.01.2021, for the implementation of nationally mutually harmonized education and science policy and successful implementation of the ongoing reforms, by the decision of the DU Senate (Protocol No.1 of the DU Senate meeting of January 25, 2021) the period of "Daugavpils University Development Strategy 2015-2020" has been extended until the start of a new approved strategy (indicative 2023).

Strategy general goal is developing Daugavpils University as academic traditions based, modern, and competitive study, scientific, and innovation centre.

Strategy determines the medium-term goals:

1. To provide high quality education that corresponds with future challenges and is based on theoretical knowledge and acquiring of research skills, preparing internationally competitive specialists, developing their abilities and encouraging life-long learning.
2. To develop scientific and creative work on an international level, deepening integration of scientific research in the study process, facilitating technology transfer and development of innovations and contributing to public understanding of the science.
3. To increase the role of Daugavpils University as a consolidator of scientific educational institutions in Eastern Latvia and a driving force of the development, as well as to promote the reputation of the University in Latvia and all over the world.
4. To ensure united and efficient work of organisational structure and to introduce a quality

management system.

5. To develop a modern, environmentally friendly infrastructure, safe and supporting working environment.
6.

[1] Ministry of Education and Science, Survey of higher education in Latvia in 2020. Available: https://www.izm.gov.lv/lv/media/12842/download [viewed 20.02.2023]

[2] Ministry of Economics, Summary: Economic and labor market trends. Available: https://prognozes.em.gov.lv/lv [viewed 20.02.2023]

[3] Ministry of Economics, Informative Report on Medium and Long-Term Labor Market Forecasts. Available: https://www.em.gov.lv/lv/media/598/download [viewed 20.02.2023]

[4] Vasiļevska, Daina. Socio-economic factors for ensuring access to higher education in Latvia. Doctoral Thesis, University of Latvia, 2014. Available: https://dspace.lu.lv/dspace/bitstream/handle/7/5241/42418-Daina_Vasilevska_2014.pdf?sequence=%20%201 [viewed 20.02.2023]

[5] Daugavpils University Development Strategy 2015-2020 (summary). Available: https://du.lv/wp-content/uploads/2021/12/DU_attistibas_strategija_25.01.2021.-converted.pdf [viewed 20.02.2023]

[6] Daugavpils University Development Strategy 2015-2020 (summary). Available: https://du.lv/wp-content/uploads/2022/09/DU-Strategy-summary-1.pdf [viewed 20.02.2023]

1.2. Description of the management structure of the higher education institution/ college, the main institutions involved in the decision-making process, their composition (percentage depending on the position, for instance, the academic staff, administrative staff members, students), and the powers of these institutions.

DU is a derived public person. DU is state founded and acts as an autonomous self-governing institution. Decision about reorganization or liquidation of DU is made by the Cabinet of Ministers on the proposal of the Minister of education and science.

DU self-governing is based on the rights and opportunities of the staff to engage in academic and scientific, administrative, and economic decision-making. DU acts on the basis of the Constitution of the Republic of Latvia, Law on Education, Law on Scientific Activity, Law on Higher Education Institutions, DU Constitution, and other laws and regulations.

DU major decision-making institutions are: Daugavpils University Council, Constitutional Assembly, Senate, rector, Academic Court of Arbitration.

In 2022, the **Daugavpils University Council** was approved – the highest decision-making body of the University, which is responsible for the sustainable development, strategic and financial supervision of the University, as well as supervises the activities of the Rector of the University and ensures the University's activities in accordance with the goals set in its development strategy. The Council is established in the composition of 7 (seven) members, of which 3 (three) members of the Council are nominated by the University Senate, 3 (three) are nominated by the Cabinet of Ministers of the Republic of Latvia, and 1 (one) by the President of the Republic of Latvia. The Council operates in accordance with the regulations of the Daugavpils University Council (available

in Latvian only[1]).

DU Constitutional Assembly (Satversmes sapulce) is the academic, general staff and student representative body of DU, which is elected for three years by secret ballot, from professors and other academic staff - 35 representatives (70%), students - 10 representatives (20%), and general staff - 5 representatives (10%). The Constitutional Assembly decides on the adoption, amendment, or repeal of the Constitution (Satversme); The Constitutional Assembly adopts and makes amendments to the Regulation of the Senate, elects the Senate, calls off the members of the Senate; elects the rector to the position and can initiate the removal of the rector from the position, listens to the rector's report; elects the Academic Arbitration Court and approves its regulation. The Constituent Assembly has the right to accept for examination and decision also other conceptual issues of operation and development of Daugavpils University.

DU Senate is a collegial higher academic decision-making body, which is responsible for the excellence, development and compliance of DU with internationally recognized quality standards of education, research, creative activity. The Senate regulates the academic, creative, and scientific spheres of DU. The Senate operates in accordance with the procedures established in the DU Constitution and the regulations approved by the Senate. Within the autonomy of the university, the Senate protects and ensures the academic freedom of the academic staff and students. The Senate is elected by the Constituent Assembly for three years. The Senate consists of 15 members - 11 representatives from the academic staff of DU elected by the Constitutional Assembly, 3 student representatives elected by the student self-government and approved by the Senate, as well as the rector in accordance with the position held and in accordance with the Act on Higher Education Institutions. The students represented in the Senate of DU have the delaying veto right in matters related to the interests of the students.

The highest official of DU is the **rector**. Candidates for the post of rector are selected within an open international competition by the university Council and elected by DU Constitutional Assembly. The rector administrates the university and is responsible for the achievement of the goals set in the university development strategy, as well as efficient and lawful use of the university's financial resources in accordance with the law, other regulatory enactments, as well as the university's Constitution, the decisions of the Council and the Senate. The rector carries out representative functions of the university, performs other activities to ensure successful operation of the university and represents the university in cooperation with other institutions and private individuals, within the scope of rector’s competence bearing responsibility for the compliance of the university's activities with the Act of HEI and other regulatory acts.

The Academic Arbitration Court examines applications by DU students and academic staff regarding restrictions or violations of academic freedom and rights stipulated in the DU Constitution; examines disputes between DU officials, as well as administrative institutions of DU structural units, which are in a subordinate relationship; examines, in the cases specified in the Act on HEI, submissions on challenging administrative acts or actual actions and makes relevant decisions on them, as well as performs other tasks provided for in the DU Constitution. The Academic Arbitration Court is elected for three years in the composition of seven people, including four representatives from among the academic staff by secret ballot by the Constitutional Assembly, three student representatives by the student self-government.

Council of Studies is a management authority that supervises issues of study planning, organizing, and coordinating, provides the necessary conditions for the academic work at faculties and departments. Council of Studies includes vice rector for studies, faculty deans, and the head of the Department of Studies. Main duties of the Council of Studies are coordinating the elaboration and execution of bachelor, master, and professional study programmes, elaboration of the scheme

of studies, its analysis and determining the main directions of its improvement and development, organizing the investigation and implementation of foreign countries' experience.

Council of Science is an institution of representation of branches and sub-branches of science that coordinates the scientific work at the university. Main functions of DU Council of Science are supervising the elaboration and implementation of DU strategy, science development process, allocation of funds for science, execution of promotion, and the work of professor councils. DU Council of Science consists of vice rector for science, head of the Department of Science, representatives delegated from each scientific institute council, a representative from professors delegated by faculty in case the faculty has no institute or no institute council, DU Young Scientist Association representative.

Faculty council supervises the study, scientific and/or artistic work and economic activity of the faculty. The configuration of council corresponds to the requirements of the promotion council in the respective branch or sub-branch of science and no less than a half of its members must be professors, associate professors, senior researchers, and experts approved by Latvian Council of Science. The council is formed of the chairperson of the council, deputy chairperson of the council, and council members. The council includes the dean; deputy dean/s and/or education methodologist; heads of departments, institutes, centres and other faculty structural units; it may include study programme directors, representatives of the academic staff from the structural units; student representatives that are delegated by the faculty student self-governance (20% of the council members).

Study direction council is formed upon the recommendation of DU Council of Studies and approved by DU Senate. The members of the Study direction council are approved by DU Council of Studies. Study direction council includes study direction programme directors, the academic staff, students (at least one representative from 1st level professional education programme, bachelor, master, and doctoral study programmes) and representatives of employers. Functions of the council are: to elaborate the study programme/s of the study direction; execute the direction study programme self-assessment and implementation analysis; analyze students' academic performance; analyze the academic work of the academic staff involved in the study direction; facilitate the integration of scientific work in the study programme.

[1] Daugavpils University Regulations of the Council (in Latvian). Available: https://du.lv/wp-content/uploads/2022/09/Padomes-nolikums_25.08.2022..pdf [viewed 20.02.2023]

1.3. Description of the mechanism for the implementation of the quality policy and the procedures for the assurance of the quality of higher education. Description of the stakeholders involved in the development and improvement of the quality assurance system and their role in these processes.

Quality ensuring policy is part of Daugavpils University development strategy for 2015-2020.

DU study quality management system observes the compliance with ISO 9001:2017 quality standard. Compliance with this standard testifies to the fact that DU tends for the quality of its education services by maintaining the quality management system (QMS), periodically passing accreditation and verifying the efficiency of the system. QMS testifies that DU makes an effort to make out the preferences of the potential students, tends to maintain constantly good quality of

studies and governance and ensure systematic and transparent processes as well as incessantly improve cooperation with cooperation partners and community.

The envisaged outcomes of DU implemented ESF project “Daugavpils University governance and management competence improvement” (No. 8.2.3.0/18/A/010) are – adjust DU study and governance quality systems and receive ISO 9001 certificate that is an internationally recognized organization quality mark.

DU Council of Studies and DU Centre of Study Quality Assessment (henceforth – CSQA) introduces quality provision systems on the basis of “DU study internal quality assurance policy”[1]. The policy has been elaborated in accordance with *The Standards and guidelines for quality assurance in the European Higher Education Area* (ESG) and observing legal acts of the Republic of Latvia (Law on Higher Education Institutions, Higher education standards, etc.), DU normative acts and “Daugavpils University development strategy for 2015 – 2020”.

To ensure the improvement of the existing normative documents and procedures at DU and compliance with the student centered and sustainable higher education, especially assessing and updating quality policy implementation mechanisms, the study quality system is being updated within ESF project “Daugavpils University governance and management competence improvement” (No. 8.2.3.0/18/A/010). Within the framework of the project, in 2021, the new normative acts for the internal study quality assurance were drawn up, which were approved by rector's ordinance, for example, “Internal Quality Assurance Policy of studies at DU” (see in *Other Annexes*), “DU Study Quality Policy and Study Quality Monitoring Strategies, “Procedures for Ensuring the Effectiveness of DU Study Internal Quality Assurance System”, etc., which are aligned with the content of the newly developed "DU Quality Policy" and "Quality Management System Manual". All these documents are available from the DU internal network in Latvian. List of Regulations for internal quality assurance in English see in "*Other Annexes*".

Mechanisms of the study process quality provision

Study quality maintaining aims at monitoring and improving the study programme implementation and facilitating prerequisites for reaching study programme outcomes. Quality monitoring is constant: during enrolment, recruiting the academic staff, improving the study programmes, reviewing the activity of structural units and their heads according to the academic and research work outcomes.

Higher education internal and external quality provision proceeds in cooperation between DU and the Ministry of Education and Science (in distribution of State budget funded places, execution of conceptual decisions), Higher Education Council (dealing with strategic issues, drawing statements), and Academic Information Centre (study programme licensing, study direction assessment, recognition of students’ prior education).

The main forms of quality assessment are as follows:

External assessment – licencing, accreditation, and assessment of independent experts. It is ensured by the quality ensuring agency listed in the European higher education quality ensuring register (in Latvia – Higher Education Quality Agency). It is coordinated by heads of study directions along with CSQA and vice-rector for studies.

Internal assessment – constantly performed by DU study direction councils elaborating self-assessment reports. Internal assessment is implemented and coordinated by DU CSQA approved by the Senate. In accordance with DU study internal quality ensuring policy there is systematic assessment of study directions and programmes in order to make sure how the programme objectives and study outcomes are reached, the compliance of the programme with the current

developments of national economy and labour market demands.

The internal quality of studies is ensured by the following measures:

Quality ensuring instrument	Implementation procedure
Strategic planning of the process of studies	Implemented by the study programme director in cooperation with the academic staff and members of the study direction council; Analyzing the shortcomings, risks, development opportunities of the study direction and study programmes wherein.
Examining the issues related to the process of studies	Study direction councils assess the process of studies within a programme, its outcomes, and proposes to the head of the study direction and study programme directors measures for the programme improvement and integration of recent ideas in the study content and process. The respective structural units discuss the submitted proposals and initiate changes in the study course amount, their content and calendar arrangements in semesters. Each semester, departments, taking into consideration the results of student surveys, formal indicators of students' academic performance as well as the professional indicators of the academic staff members in respective spheres (participation in conferences, research and other projects, applied projects, publications, etc.), analyze in detail the content of each course and the quality of its delivery. After that proposals as to changes in the study courses or study programme are discussed in faculty councils and after their support are addressed to DU Council of Studies that examines the justification of changes proposed. In case of a positive decision taken by the Council of Studies, the changes are implemented.
Surveys	At the end of each academic year surveys of students[2], employers[3] (available in Latvian), and alumni[4] (available in Latvian) are carried out. Based on the survey results, the study programme content is reviewed and improved within study direction councils executed by study programme directors. All justified opinions, proposals, and reprimands are examined by the study programme director, in case of necessity discussing the issues in study direction councils. CSQA upon necessity carry out express surveys in order to clarify students' opinion on current issues concerning the process of studies.
Self-assessment of the study direction and preparation of the self-assessment report	The head of the study direction organizes meetings of the study direction council in order to discuss the main trends of programme development and management. For examining debatable issues (assessment of examinations, ignoring the regulations of DU by students and/or academic staff members, etc.) student representatives are invited. Once a year the head of the study direction along with programme directors prepare the self-assessment report of the study direction on the previous academic year that is examined by CSQA and approved by the Council of Studies and the Senate.

E-study environment improvement	DU e-study environment Moodle is used to provide information on the courses acquired during the semester. For each course students have access to the following information: study course description, criteria of assessment, materials for student independent work, etc.

Characteristics of the parties involved in the elaboration and improvement of quality ensuring system and their role.

Efficient results are reached by means of understanding and support of the administration, purposeful DU strategy and policy implemented by successful participation of the academic staff as well as full partnership, resource saving approach, and process governance.

[1] "DU study internal quality assurance policy". Available: https://du.lv/en/about-us/documents/ [viewed 20.02.2023]

[2] Survey of students. Available: https://aptaujas.du.lv/index.php/787116/lang-lv [viewed 20.02.2023]

[3] Survey of employers (in Latvian). Available: https://aptaujas.du.lv/index.php/544412 [viewed 20.02.2023]

[4] Survey of alumni (in Latvian). Available: https://aptaujas.du.lv/index.php/764263/lang-lv [viewed 20.02.2023]

1.4. Fill in the table on the compliance of the internal quality assurance system of the higher education institution/ college with the provisions of Section 5, Paragraph 2(1) of the Law on Higher Education Institutions by providing a justification for the given statement. In addition, it is also possible to refer to the respective chapter of the Self-Assessment Report, where the provided information serves as justification.

1.	The higher education institution/ college has established a policy and procedures for assuring the quality of higher education.	Complies DU is being implemented "DU study internal quality ensuring policy" that facilitate and ensure the quality of higher education. To ensure the improvement of the existing normative documents and procedures at DU and compliance with the student centered and sustainable higher education, especially assessing and updating quality policy implementation mechanisms, the study quality system is being updated within ESF project "Daugavpils University governance and management competence improvement" (No. 8.2.3.0/18/A/010) (see section 1.3).

2.	A mechanism for the creation and internal approval of the study programmes of the higher education institution/ college, as well as the supervision of their performance and periodic inspection thereof, has been developed.	Complies In accordance with the “Regulation on Studies at Daugavpils University” and “Regulations on Opening and Managing Daugavpils University Study Directions and Study Programmes” (available in Latvian) there are established mechanisms for the development, internal approving of study programmes, their monitoring and periodic examination. “Regulation on Studies at Daugavpils University”. Available: https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf [viewed 20.02.2023] “Regulations on Opening and Managing Daugavpils University Study Directions and Study Programmes” (in Latvian). Available: https://du.lv/wp-content/uploads/2021/12/3_DU_Studiju-virzienu-un-studiju-programmu-atversanas-un-parv-nolikums.pdf [viewed 20.02.2023]
3.	The criteria, conditions, and procedures for the evaluation of students’ results, which enable reassurance of the achievement of the intended learning outcomes, have been developed and made public.	Complies “Regulation on Studies at Daugavpils University” and study course descriptions of each study programme state the criteria, conditions, and procedures of the assessment of students’ academic performance that attests to reaching the envisaged outcomes of studies. The Regulation and study course descriptions are freely available to students. Students have an opportunity of giving proposals for the criteria, conditions, and procedures of the assessment of students’ academic performance in surveys.
4.	Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed.	Complies DU has elaborated internal normative acts and mechanisms that regulate the ensuring of the qualification and work quality of the academic staff: “Regulation on elections to academic positions in Daugavpils University” and “Procedure of assessing the scientific activity of Daugavpils University academic staff”. Self-assessment reports include the results of surveys and measures of implementing students’ proposals and averting criticism.
5.	The higher education institution/ college ensures the collection and analysis of the information on the study achievements of the students, employment of the graduates, satisfaction of the students with the study programme, efficiency of the work of the academic staff, the study funds available, and the disbursements thereof, as well as the key performance indicators of the higher education institution/ college.	Complies Surveys of students, alumni, and employers are organized every year. CSQA carries out express surveys to learn students’ opinion on current issues related to the process of studies. There is regular cooperation with the Student Council, exchange of opinions, examination of proposals.

6.	The higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing their quality assurance systems.	Complies DU study quality management system observes the compliance with ISO 9001:2017 quality standard. Compliance with this standard testifies to the fact that DU tends for the quality of its education services by maintaining the quality management system (QMS), periodically passing accreditation and verifying the efficiency of the system. QMS testifies that DU makes an effort to make out the preferences of the potential students, tends to maintain constantly good quality of studies and governance and ensure systematic and transparent processes as well as incessantly improve cooperation with cooperation partners and community.

2.1. Management of the Study Field

2.1.1. Aims of the study field and their compliance with the scope of activities of the higher education institution/ college, the strategic development fields, as well as the development needs of the society and the national economy. The assessment of the interrelation of the study field and the study programmes included in it.

The study direction “Life Sciences” implemented at DU is an essential constituent part of DU's strategic specialization direction in the field of natural sciences, in accordance with Cabinet of Ministers Order No. 449 of 21 June 2022 "On strategic specialization of state HEI” [1].

The study direction “Life Sciences” is implemented and its development is planned based on DU Strategy of Development for 2015-2020. The implementation of the study programmes included in the study direction will contribute to the achievement of the mid-term goals included in the DU strategy: *“To provide high quality education that meets future challenges and is based on the acquisition of theoretical knowledge and research skills, preparing professionals who are competitive on the international labor market, developing their abilities and motivating for lifelong learning”*, as well as *“To develop internationally recognized scientific and creative activity, deepening the integration of scientific research in the study process, engaging in international, national and branch research programmes, promoting technology transfer and the development of innovations and promoting public understanding of science”*. The implementation of the study programmes of the study direction is closely related to the research programme defined in the DU strategy in the priority research direction “Biology” and will contribute to the achievement of the set goals. One of the major tasks of the priority research direction “Biology” is the creation of an innovation environment at Daugavpils University and the integration of scientific achievements in the study process, as well as a closer connection of science with economy, social and cultural life in the region and nationwide.

Study direction “Life sciences” is implemented at Daugavpils University on all levels: bachelor, Master’s, and doctoral. See below the characteristics of the study programme implemented in the study direction.

1. Academic bachelor study programme “Biology”

- programme code – 43421

- the amount of the programme – 122 CP

- duration of the programme implementation – full-time studies – 3 years

- type and form of the programme implementation – full-time face-to-face studies

- requirements for starting studies – secondary education

- degree to obtain – Bachelor of Natural Sciences in Biology

- place of the programme implementation – Daugavpils University

- programme director – Dr.biol, professor Inese Kokina

2. Academic Master’s study programme “Biology”

- programme code – 45421

- the amount of the programme – 80 CP

- duration of the programme implementation – full-time studies – 2 years

- type and form of the programme implementation – full-time face-to-face studies

- requirements for starting studies – bachelor’s degree in biology or medicine, or environmental science, or 2nd level higher professional education in the field of biology, medicine, pharmacy or veterinary medicine

- degree to obtain – Master of Natural Sciences in Biology

- place of the programme implementation – Daugavpils University

- programme director – Dr.biol, professor Inese Kokina

3. Doctoral study programme “Biology”

- programme code –51421
- the amount of the programme – 120 CP
- duration of the programme implementation – full-time studies – 3 years
- type and form of the programme implementation – full-time face-to-face studies
- requirements for starting studies – Master’s degree in biology or related branches or associated higher education
- degree to obtain – Doctor of Science degree Doctor of Science (PhD) in Natural Sciences
- place of the programme implementation – Daugavpils University
- programme director – Dr.biol., professor Arvīds Barševskis

The main overall goal of the study direction is preparing qualified, internationally competitive specialists in the branch of biology who are able to independently plan and conduct research in biology and its sub-branches. The main goal of the study direction is adapting to the current needs and challenges of society in Latvia and the European Union and developing a regional biological science study center based on the academic and professional traditions of Daugavpils University.

Objectives of the study direction:

- provide students with high-quality theoretical and practical knowledge in biology that meets modern requirements;
- promote the development of the student as a free, responsible and creative personality;
- to develop the study process in order to increase the student's intelligence, promote spiritual growth, facilitate the use of intellectual abilities;
- advance students' analytical abilities, develop skills in setting research and practical problems and solving related theoretical and practical tasks;
- to deepen the students' understanding of the role of biology in modern science, national economy, and social life;
- develop skills and abilities in modern information acquisition and processing technologies;
- promote the students' competitiveness in further academic and professional studies;
- to provide students with a scientific basis for their professional activity, developing the abilities of scientific analysis and the ability to independently solve problems, as well as prepare students for further scientific research work.

The aim and objectives of the study direction are coordinated with the new trends in the education system in the European Union, with the requirements described in the regulatory documents, the DU Constitution and with the priority research directions determined in the Daugavpils University Development Strategy. In the current version, the study programmes are intended to provide students with a scientific basis for their professional activity, developing the abilities of scientific analysis and the ability to independently solve problems, as well as prepare them for future scientific research work.

[1] Cabinet of Ministers Order No. 449 of 21 June 2022 "On strategic specialization of state HEI" (in Latvian). Available: https://likumi.lv/ta/id/333471-par-valsts-augstskolu-strategisko-specializaciju [viewed 20.02.2023]

2.1.2. SWOT analysis of the study field with regard to the set aims by providing explanations on how the higher education institution/ college expects to eliminate/ improve weaknesses, prevent threats, and avail themselves of the given opportunities, etc. The assessment of the plan for the development of the study field for the next six years and the procedure of the elaboration thereof. In case there is no development plan elaborated or the aims/ objectives are set for a shorter period of time, information on the elaboration of the plan for the development of the study field for the next assessment period shall be provided.

Based on the analysis of the formal indicators of the study programme implementation and taking into consideration the results of student surveys, as well as assessing the trend and dynamics of the development of external factors, the study direction council has carried out a SWOT analysis (see Table 2.1.2.1) and has highlighted strengths, weaknesses, opportunities and potential threats in the implementation of the study direction in order to prognosticate the future development of study programmes and ensure their improvement.

Evaluating the prior development, current situation, and perspectives of the study direction "Life sciences", the study direction council evaluates both the content of study programmes in general and the content and provision of individual study courses, analyzes the organization of the study process and resolves issues related to programme development planning.

Table 2.1.2.1. ***SWOT analysis of the study direction "Life sciences"***

Strengths	**Weaknesses**
Study direction	
- Clear goal, objectives, and strategy of the study direction; - integrative and interdisciplinary approach to the study programme content provided by involving specialists of various sub-branches of biology in study course teaching; - the study direction is highly appreciated among the study programme graduates in Latvia; - the majority of programme graduates work in Latvian state and private businesses; - high quality infrastructure and technical provision for studies; - the academic staff involved in the study direction implementation possess high capacity of attracting project funding; - the academic staff involved in the study direction implementation have high scientific qualification.	- Insufficient recognizability among study programmes in biology taught in the EU; - The uncompetitive remuneration of the academic staff lowers the competitiveness of state financed HEI on labour market and makes a negative impact on the motivation of professionals involved in the study direction; - Insufficient state financing for scientific institutions reduces students' opportunities to engage in research; - The heavy academic workload of the academic staff lowers the opportunities of working at methodical issues and greatly aggravates research work; - Part of the academic staff have insufficient command of foreign languages that reduces the potential of the study direction in involving foreign students; - Students have insufficient command of foreign languages and insufficient participation in international projects.
Study process	
- Provided opportunity to obtain full education in the branch of biology; - Integration of studies and research work; - High level material and technical base and provision with qualified academic staff members; - Opportunity to obtain in-depth knowledge and familiarize with latest ideas in biology; - Use of diversified study forms and methods; - Students are involved in the research activities of the structural units, their research is approbated in the academic environment; - Broad opportunities of using international peer-reviewed scientific data bases.	- Quantitatively insufficient provision with recent textbooks and scientific periodicals; - Comparatively small number of visiting lecturers and professors in the study programmes within the study direction; - Small number of foreign students in the study direction. - Incomplete introduction of module system; - Insufficiently used opportunities of distant and e-studies;
Students	

- High motivation for studying in the selected speciality; - Good contact with the academic staff of the study programmes; - Engaging in the assessment of the study direction quality and content updating; - Students' interest in presenting their research results and approbating them in scientific forums and conferences.	- Uneven degree of knowledge in biology of the students enrolled in the study programme; - Insufficient command of a foreign language; - Comparatively low engagement in international exchange programmes; - Low engagement in the university academic and public life, lack of academic and students' traditions
Academic staff	
- High academic qualification in compliance with the requirements of Act on HEI; - Mutual cooperation, observing principles of good collegiate and tolerance; - Improving academic and professional competences involving in research projects, publishing research results and presenting them to the academic community at international conferences; - Good contact with students; - Ability to assess and admit flaws in the study courses taught and search for ways of improving the quality of studies.	- Disproportion between the amount of study courses taught and the research work load (under the given conditions the academic staff teaches too many contact hours that reduces their research activity); - Insufficient involvement in international academic and scientific exchange programmes and post-doctoral study opportunities.
Other factors	
- Optimal number of students in academic groups that grants good contact between the instructor and student as well as provides an individual approach opportunity. - Rotation of students after completing each examination session and competition for state budget funded places that raises students' motivation and academic performance level; - Contact with potential employers.	- Exclusively project-based infrastructure and especially human resource development aggravates the opportunity of planning the process of academic and research work.
Opportunities	**Threats**
Study direction	

- constant improvement of the development strategy of the study direction, taking into account the changes on the labor market and major global development trends, implementation of new study programmes - attracting EU financial instrument and structural fund resources for improving the study environment and quality of studies; - expanding the cooperation with other European universities; - broader involvement of academic staff members and students in exchange programs, e.g. Erasmus+, etc.; - study course provision in foreign languages, involving students from abroad; - involving highly qualified visiting lecturers and professors; - opening of new academic staff and support staff positions, election of new academic staff members along with programme development, creation of new study programmes and expansion of the scientific infrastructure.	- Risk of reduced number of students due to the poor demographical situation in the country; - Fall of the living standard and aggravated material situation in the country and the region, lower solvency of residents and inability to cover the study related costs; - outflow of potential students to foreign countries; - decrease in the competitiveness of academic staff remuneration; - unpredictability of the future due to the effects of the Covid-19 pandemic and the security situation in the world.

Evaluating the current study direction “Life Sciences”, it should be concluded that it is a good basis for future professional and academic work. The study direction has the following growth opportunities:

- potential of cooperation with foreign universities for the implementation of student and academic staff exchange programs, joint scientific research projects, continuing the signing of cooperation agreements
- promoting the improvement and development strategy of the study direction, taking into account the ongoing changes on the labor market both in Latvia and the EU states.

Events to prevent weaknesses and threats of the field of study are reflected in the summary of the development plan of the field of study (available in appendix *2.1.2.Summary of the development plan of the field of study*). The study direction development plan for the next six years envisages activities in three directions: Studies, Research and Material and technical support. Special attention is devoted to an even closer integration of studies and research, anticipating measures for renewal of academic staff, capacity building, and even closer involvement of students in research. Emphasis is also placed on the internationalization of the field of study, foreseeing ERASMUS+ mobility, concluding cooperation agreements with foreign partner institutions, creating international research groups, etc. Much attention is paid to the digitization of study programs, incl. placement of study materials in the e-environment, events. A big challenge is definitely popularizing study programs and attracting students, incl. students from abroad.

2.1.3. The structure of the management of the study field and the relevant study programmes, and the analysis and assessment of the efficiency thereof, including the assessment of the role of the head of the study field and the heads of the study programmes, their responsibilities, and the cooperation with other heads of the study

programmes, as well as the assessment of the support by the administrative and technical staff of the higher education institution/ college provided within the study field.

An essential prerequisite of the implementation of the study direction and its programmes is provision of programme management and its inner quality control system and its functioning at DU. The study process quality and management provision system is aimed at securing compliance of the programme content to the current requirements in the higher education and labour market demands in Latvia and EU.

Assessment of the quality of study programmes and the study process at DU is carried out in order to control the execution of study programmes in accordance with accreditation documents, improve its content, and plan its development. On the whole, this system is aimed at achieving the goals set for the study program and fulfilling the objectives set. Quality control is organized at the University level and is carried out at all stages, i.e. matriculating students, hiring academic staff, evaluating and improving the content of the study programme, evaluating the functioning of structural units and their heads according to the results of scientific and academic work.

In addition to external evaluation provided by the University in cooperation with the Ministry of Education and Science of the Republic of Latvia, an internal quality assurance system operates continuously and systematically. The internal control of the quality of studies is constantly carried out by the study direction council, the profiling departments of the Faculty of natural Science and Mathematics and the Institute of Life Sciences and Technologies, this work is coordinated and managed by the Centre of Study Quality Assessment Center (CSQA) approved by the DU Senate, the Department of Studies of DU and the Council of Studies. See the diagram of the DU management structure in the appendix (*2.1.3.DU management structure*).

The management of the study direction “Life sciences” is carried out in accordance with the “Regulations on opening and management of study directions and study programmes of Daugavpils University”[1].. The study process is organized in accordance with the DU Constitution[2], Act on HEI[3], and other regulatory documents.

The study direction council assesses the progress and results of the study process and recommends measures to improve the programs and integrate the latest knowledge into the study content and process. The study direction council approves proposals for changes in the amount of study courses, their content and calendar arrangement by semesters, taking into account the results of student surveys, student academic performance, as well as indicators of the professional performance of lecturers. Proposals for changes in study courses or study programmes submitted by the study direction council are discussed at the Faculty of Natural Sciences and Mathematics Council and forwarded to the DU Council of Studies.

The head of the study direction, in cooperation with programme directors, organizes and coordinates the study process in the study programmes included in the study direction, constantly monitoring the quality of studies. The head of the study direction is responsible for conceptual changes in the study direction, convenes meetings of the study direction council if necessary, prepares the annual study direction self-evaluation report in cooperation with study programme directors, collects and analyzes the information to be included in it.

The director of the study programme cooperates with the directors of other programmes and the academic staff to ensure the continuity of the study process and mutual connections. At the end of each academic year, programme directors plan the workload for the next academic year and send requests to respective structural units. The heads of the relevant structural units are responsible for

appointing an academic staff member to teach the relevant study course. Directors of study programmes communicate with students, make improvements in study programmes, coordinating them with the head of the study direction. If necessary, topical issues are considered by the study direction council and the faculty council.

The preparation of the annual programme self-evaluation report in the internal quality control system should be emphasized. Namely, at the end of each academic year, a programme report is drawn and after its discussion and approval at the study direction council and the Faculty of Natural Sciences and Mathematics council, it is submitted to the CSQA and after approval by the DU Senate, it is published and is available from the DU internal network.

It should be added the the DU Student Service Center (SSC) operates at DU and its main task is to inform DU students about current issues, as well as to provide consultations and services. Key features of SSC are as follows:

- issue certificates to students (to the bank, the State Revenue Service and other institutions, as well as certificates about study leaves, elaboration and defense of bachelor and Master's theses, etc.);

- issue the signed study contracts to students;

- advise students on issues related to the study process, extracurricular activities and dormitories;

- participate in organizing informative events (career days, educational exhibitions, etc.);

- listen to, collect students' proposals and submit them to the appropriate structural units.

The work of the SSC provides great support for the organization of the study process within the field of study.

[1] "Daugavpils University study direction and study programme opening and management regulations" (in Latvian). Available: https://du.lv/wp-content/uploads/2021/12/3_DU_Studiju-virzienu-un-studiju-programmu-atversanas-un-parv-nolikums.pdf [viewed 20.02.2023]

[2] DU Constitution (in Latvian). Available: https://du.lv/wp-content/uploads/2022/09/DU-Satversme_17.06.2022.pdf [viewed 20.02.2023]

[3] Act of HEI (in Latvian). Available: https://likumi.lv/ta/id/37967-augstskolu-likums [viewed 20.02.2023]

2.1.4. Description and assessment of the requirements and the system for the admission of students by specifying, inter alia, the regulatory framework of the admission procedures and requirements. The assessment of options for the students to have their study period, professional experience, and the previously acquired formal and non-formal education recognised within the study field by providing specific examples of the application of these procedures.

Admission to the ABSP "Biology" of DU study direction "Life sciences" is provided in accordance with "Daugavpils University admission rules for full-time and part-time undergraduate studies", admission to AMSP "Biology" takes place in accordance with "Daugavpils University admission rules

for full-time and part-time higher level studies" , while admission to DSP "Biology" takes place in accordance with the "Daugavpils University admission rules for full-time and part-time doctoral studies". Admission rules are approved annually by the DU Senate. The admission rules are updated every academic year in accordance with the Act on Higher Education Institutions, the Cabinet of Ministers' regulations of October 10, 2006 No. 846 "Rules on requirements, criteria and procedures for admission to study programmes" and the decision of the DU Council of Studies. Admission rules at DU have been developed for different levels of studies, "Admission rules for full-time studies for foreigners" are available separately. Detailed information on admission, as well as links to admission rules, are available on the DU website[1].

The admission process is additionally regulated by "Full and part-time study opportunities", "DU admission rules", registration fee, tuition fee in programmes, number of study places for admission that are approved by the decision of the DU Senate before its start. The Senate approves the deadlines for the competition and announces admission.

"DU Admission Rules" and "Study Opportunities" determine the requirements for persons who are willing to study at DU, mutual rights and obligations between the university and this person in the admission process, provide information about the study programmes and study forms of a specific academic year, about additional requirements for applicants' prior education, readiness, or special suitability for specific studies, on the evaluation criteria of the competition. Admission to DU study programmes comprises registration of applicants for studies, the procedure of the competition for study places, the announcement of the results of the competition, signing of the study agreement, and registration in the list of students (matriculation).

Admission to DU study programmes is ensured by the Secretariat of the DU Admission Commission.

The admission commission determines and approves the results of the competition. The Admissions Commission can also approve and redistribute admission places. The responsibilities of the Admissions Commission and the Secretariat of the Admissions Commission are defined in the document "Mutual obligations and rights of a person and DU in the admission process"[2].

The decision of the DU Admission Commission on the results of the competition can be appealed in accordance with the "Procedure in which a person can challenge and appeal decisions related to admission to a study programme at Daugavpils University" developed by DU[3]. The DU admission procedure and information about it are implemented efficiently and transparently. During the admission, information boards are placed in the DU hall on the ground floor, consultations are provided in person, by phone, and via e-mail; it should be added that most of the potential students communicate about admission issues using DU accounts on social networks.

In the study programmes realized by the study direction "Life sciences", students can be matriculated also in later stages of studies, according to the "Procedure for starting studies in later study stages at Daugavpils University"[4], taking into consideration the applicants' professional experience and prior formal and informal educations (Regulations on recognition of competences acquired outside of formal education or professional experience and study results achieved in prior education at Daugavpils University[5]). During the last six years, 10 students (ABSP "Biology") have resumed their studies in the later study stages in the "Life Sciences" field of study, most of whom resumed their studies at DU after a study break.

DU has signed an agreement with the University of Latvia to confirm that DU students will be provided an opportunity to continue education at the UL in case the study programme implementation at DU is terminated (*2.1.4.Agreement between LU and DU*) Sample of agreement on studies is available in appendix *2.1.4.Agreement on studies*.

[1] DU admission rules (Interantional Students). Available: https://du.lv/en/studies/admission/ [viewed 20.02.2023]

[2] “Mutual obligations and rights of a person and DU in the admission process”(in Latvian). Available: https://du.lv/gribu-studet/uznemsana/ [viewed 20.02.2023]

[3] “Procedure in which a person can challenge and appeal decisions related to admission to a study programme at Daugavpils University”(in Latvian). Available: https://du.lv/wp-content/uploads/2021/12/kartiba_uznemsanas_apstridesana.pdf [viewed 20.02.2023]

[4] “Procedure for starting studies in later study stages at Daugavpils University”. Available: https://du.lv/wp-content/uploads/2022/06/ENG_Procedure-for-the-initiation-of-studies-in-subsequent-study-stages-1.pdf [viewed 20.02.2023]

[5] Regulations on recognition of competences acquired outside of formal education or professional experience and study results achieved in prior education at Daugavpils University. Available: https://du.lv/wp-content/uploads/2022/06/ENG_Regulations-for-the-recognition-of-study-results-2.pdf [viewed 20.02.2023]

2.1.5. Assessment of the methods and procedures for the evaluation of students’ achievements, as well as the principles of their selection and the analysis of the compliance of the evaluation methods and procedures with the aims of the study programmes and the needs of the students.

In compliance with the Standards and guidelines for quality assurance in the European higher education area (standard 1.3) adopted in 2015, higher education institutions must ensure that the study programmes are implemented in the way as to encourage students to actively participate in the the study process development, and that the assessment of student academic performance complies with this approach. Assessment in the study programmes of the “Life Sciences” study direction is carried out based on the following principles:

- the assessment criteria are clear and understandable, are previously published and available for public;

- instructors are familiar with testing and examination methods;

- assessment gives students an opportunity to show to what extent they have achieved the expected learning outcomes;

- students receive feedback, which, if necessary, provides advice related to the learning process;

- assessment is consistent, fair, suitable for all students and is implemented in accordance with legislation and approved procedures;

- there is a procedure for examining student appeals.

Depending on the teaching form and methods, the instructor chooses the assessment forms and criteria. A large part of the study outcomes require the student not only to demonstrate knowledge, but also to practically analyze the learned material, connecting it to everyday life and existing experience. Therefore, seminars and practical assignment classes play an important role. In practical assignment classes, during individual or group work presentations, students improve their

analytical skills by expressing their opinion. Acting in this way, a constant dialogue is maintained with surrounding partners – students are aware of the diversity of existing opinions and enrich each other's experience. In study courses for the acquisition of practical skills and competences, special attention is paid to the development of integrative reflection. Reflection contributes to the stabilization of students' acquisition of professional skills, as well as promotes self-awareness and self-actualization. Therefore, in these cases, the formative assessment of study outcomes has a particularly motivating importance in the study process. It is within the framework of formative assessment that students understand the mistakes made and improve their acquired competence, because formative assessment provides students with feedback on the fact that knowledge is being obtained.

In addition to the formative assessment, lecturers also use summative evaluation. Summative evaluation is formed in the case of grading mid-term tests. At the end of the study course, a test with a mark or an exam is envisaged. The final examination shall take place orally, in writing, in the form of an achievement test.

Students can get acquainted with the criteria, conditions and binding procedures for the evaluation of achievements in the descriptions of the courses of the study programme.

The principles and criteria of evaluation are described in the description of each study course, which is available in the E-environment of the DU. Upon commencing work with students in the auditorium, the teaching staff shall acquaint students with the requirements of the study course and with the knowledge and skills assessment system.

In order to analyse the conformity of assessment methods and procedures with the achievement of the aims of study programmes and students' needs, the results of student surveys, formal indicators of student success are described, the content of each study course and the quality of its teaching are examined in detail. If discrepancies in the assessment methods are detected, then the necessary amendments in the content of study courses or in the organisation of the study process are considered, if necessary, examining issues in the Study Direction Council. After that, proposals for changes in study courses or study programme are discussed in the Council of the Faculty of Humanities, and after its approval, they are directed to the DU Council for Studies, which evaluate the relevance and necessity of changes. In case of a positive decision of the Council for Studies, the changes are approved.

Study outcome assessment is described in detail in "Regulations on Studies at Daugavpils University"[1].

[1] Regulations on Studies at Daugavpils University. Available: https://du.lv/wp-content/uploads/2021/12/NOLIKUMS_PAR_STUDIJAM_DU_2018.pdf [viewed 20.02.2023]

2.1.6. Description and assessment of the academic integrity principles, the mechanisms for compliance with these principles, and the way in which the stakeholders are informed. Specify the plagiarism detection tools used by providing examples of the use of these tools and mechanisms.

"Code of Ethics for Employees and Students of Daugavpils University"[1] defines ethical guidelines

for DU employees and students. The Code determines that students shall support and maintain academic and professional integrity, shall not allow plagiarism, other disintegrated use of intellectual property or fraud, while the academic staff shall assess students' paper in a timely, integrate and fair manner, support and maintain academic and professional integrity without creating conditions enhancing academic fraud, shall follow the process of student work development, shall not allow plagiarism and other disintegrate use of intellectual property or other forms of fraud.

In implementing the principles of academic integrity, DU complies with the "General Guidelines of Academic Integrity"[2], which contributes to the development of a common understanding of issues of integrity in science and entrepreneurship. Study programmes of the study direction shall observe the principles of academic integrity in compliance with the "Regulations on Studies at Daugavpils University"[3]. For example, if students use unauthorised aids in the examination or signs of plagiarism are detected in the final paper, they shall be suspended from the examination as having not passed the examination and an appropriate entry in the examination report shall be made.

On October 28, 2019, within the framework of ESF SAM 8.2.3.0/18/A/010 project "Improving Daugavpils University management and leadership competencies", a six-hour training course "Academic Integrity" was organized for DU employees.

DU have developed and follow the "Procedure for submission of final works for plagiarism control at Daugavpils University", which provides for mandatory submission and storage of electronic versions of the final examination papers in the Daugavpils University informative system and provides an opportunity to compare students' final papers with the set of papers defended in previous years. All DU final examination papers are examined prior to the defence using plagiarism control system PLAG LV (plag.lv). If signs of plagiarism have been detected in the process of comparing the final papers, the Expert Commission established by the Dean of the Faculty and approved by the Order shall evaluate the paper and decide on the detection of plagiarism in the paper. The expert commission shall, within three working days, examine the report and submit proposals regarding the student's responsibility to the Dean of the faculty.

Adherence to the principles of academic integrity is strictly monitored in the process of development, assessment, and defense of PhD theses in DSP "Biology". The promotion process at Daugavpils University takes place in accordance with the "Regulations on Daugavpils University Promotion Councils"[4]. The assessment and characteristics of the opportunities of promotion and the process of promotion for the doctoral study programme students is provided in detail in section 5.2.5.

The contents of several study courses in the study programmes implemented within the study direction "Life Sciences" include topics related to the basic principles of academic integrity, and students are informed of the possible consequences of their violation.

[1] Daugavpils University academic staff and student ethic code (in Latvian). Available: https://du.lv/wp-content/uploads/2021/12/Etikas-kodekss.pdf [viewed 20.02.2023]

[2] "General guidelines of academic integrity" (in Latvian). Available: https://ebooks.rtu.lv/product/akademiska-godiguma-terminu-vardnica-akademiska-godiguma-vispar ejas-vadlinijas/ [viewed 20.02.2023]

[3] Regulations on Studies at Daugavpils University. Available: https://du.lv/wp-content/uploads/2021/12/NOLIKUMS_PAR_STUDIJAM_DU_2018.pdf [viewed 20.02.2023]

[4] “Regulations on Daugavpils University promotion councils”(in Latvia). Available: https://du.lv/wp-content/uploads/2021/05/Nolikums-par-DU-Promocijas-padomem-1.pdf [viewed 20.02.2023]

2.2. Efficiency of the Internal Quality Assurance System

2.2.1. Assessment of the efficiency of the internal quality assurance system within the study field by specifying the measures undertaken to achieve the aims and outcomes of the study programmes and to ensure continuous improvement, development, and efficient performance of the study field and the relevant study programmes.

Internal quality provision system efficiency assessment within the study direction

An important role in the implementation of the study process is played by the management of direction and the quality assurance system, as the functioning of the DU Council for Studies and DU Study Quality Assessment Centre (hereinafter – SQAC). The aim of ensuring the quality and management system of the study process is to guarantee the conformity of the content of the programmes with the higher education standard, the quality of science, as well as the labour market demands in Latvia and the European Union.

Evaluation of the quality of studies is carried out with the aim to control the implementation of study programmes and plan development in order to fully achieve the aims set in the programme and to fulfil the defined objectives. Quality control is carried out continuously: in admitting students, recruiting academic staff, evaluating and improving study programmes, evaluating the activities of structural units, their managers and staff according to the efficiency of science and the results of academic work.

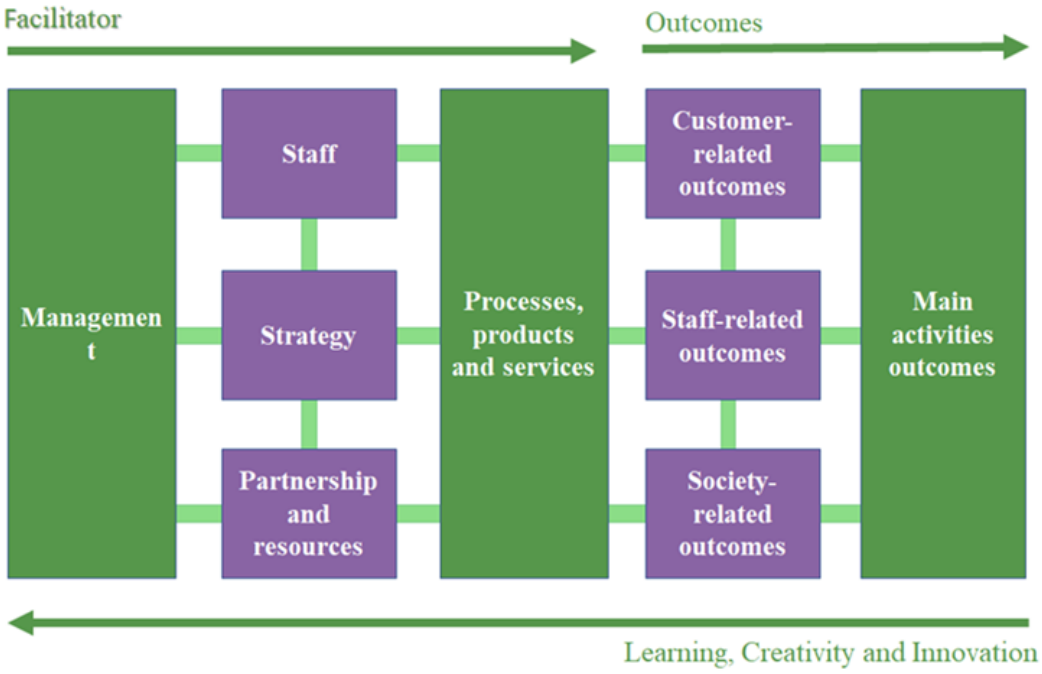

Figure 2.2.1.1. A model of a quality management system that sets out guidelines for achieving excellence at DU

The study quality assurance center carries out interconnected control and improvement measures, thus creating trust in the activities of DU and higher education in general.

To implement inner quality assurance system of studies effectively within the study direction "Health Care" the following activities are performed:

- Inner quality control of the study direction "Health Care" is carried out by the Council of study directions and academic staff of the department of Anatomy and Psyhiology. Improvement actions for direction development plan and study quality are discussed and assessed at the end of each academic year at the council meeting of the study direction "Health Care".

- Once during an academic year the head of the study direction "Health Care" in cooperation with the programme directors prepare a study direction self-evaluation report on the previous academic year.

- Lecturers regularly review the descriptions of study courses, update the content of the course, supplement it with the latest literature, as well as with the forms of practical classes.

- During the implementation of the study programmes of the field, the opinions of the lecturers involved in the programmes – industry professionals, as well as employers and graduates of the programme are regularly surveyed (surveys, analysis of some separate components of the programme, involvement of employers and university graduates in the study council), which allows closer coordination of the programme content with the labour market needs. The quality of study work is promoted by the intensive participation of the graduates in the study process of the university, both by conducting guest lectures and by providing internships and jobs. The exchange of views between the academic environment and employers also takes place regularly within the framework of scientific and practical conferences and professional seminars.

- There is a regular comparison of the content of the study program, academic and scientific work with the study programs of Physiotherapy and Nursing implemented in other Latvian higher education institutions.

- In order to improve the skills of remote work, the academic staff of the study field "Health Care" regularly participates in training courses, e.g., to ensure an effective use of the possibilities of the e-learning environment Moodle. Within the framework of the ESF project "Reduction of Fragmentation of Study Programmes of Strengthening of Shared Use of Resources at Daugavpils University", Nr. 8.2.1.0/18/A/019, for lecturers there were organized seminars for the development and integration of the study course materials necessary to support a study process.

- There is a regular strengthening of the integration of the study process and research work, considering it an essential part of the quality assurance system.

- Strategic planning of the study process is constantly performed, analyzing the weaknesses of the study program, risks, development opportunities and other related aspects.

- The personal profiles of DUIS contain information about the courses to be acquired during the semester. In each course the student has access to the descriptions of the study course, etc.

- Academic staff of the study direction "Health Care" participates in academic and methodological conferences, seminars and qualification training courses as lecturers or listeners, regularly improving study courses with innovative study forms and modern methods.

Table 2.2.1.1. Activities to promote the motivation of teaching staff at DU

Teaching staff activities	Motivation
Lecturers are given the opportunity to improve and increase their knowledge and professionalism with ERASMUS + etc. mobility programs	Gains experience abroad by doing internships and giving lectures at foreign universities / organizations.
Participation in conferences, development of scientific publications, organization of scientific communication activities, work on artistic creation projects, etc.	Lecturers are allocated funding for the scientific activities of the next period for the scientific achievement of the previous period. At the end of each calendar year, DU lecturers in the Science Department submit a report on achievements in scientific work, work projects, participation in scientific seminars and conferences, publications in accordance with The procedure for evaluating the scientific activity of Daugavpils University academic staff.
Preparation and publication of scientific articles included in the Web of Science and SCOPUS indexed editions.	Lecturers are reimbursed for expenses related to the preparation of the publication (editing of scientific texts in English (proofreading) and publication fees).
Hirsch index increase.	The DU academic staff receives remuneration for the citation Hirsch index in the SCOPUS and / or Web of Science databases within the funding available in the DU budget.
Reimbursement of expenses for scientific business trips	DU pays for business trips related to participation in scientific events and scientific research.
DU organizes *Daugavpils University research project competition*	As a result of the DU research project competition, funding is provided for topical and high-quality projects to promote the research growth of DU academic, scientific staff and students.
Within the ESF project "*Daugavpils University strategic specialization academic staff professional Competence Strengthening "(No.8.2.2.0/18/A/ 022)* and the project "*Daugavpils University study direction "Education, Pedagogy and Sports" capacity building of the academic staff in the fields of strategic specialization*" *(No.8.2.2.0/18/I/005)* DU academic staff, including lecturers of the study field "Health Care", have the opportunity to improve their language skills in English language training programmes at B2 and C1 levels.	Lecturers improve their knowledge of foreign languages free of charge, learn current issues in teaching methodologies and participate in training in the use of e-resources.

All the above-mentioned actions and events helped to improve the study programs corresponding to the field of study. For example, teaching staff involved in the field of study began to use the opportunities to participate in scientific conferences more actively, the number of scientific publications developed and published in journals Q1-Q2 increased and continues to increase, the involvement of students in research projects increases, etc. which positively affects the quality of studies in the field of study "Life Sciences".

2.2.2. Analysis and assessment of the system and the procedures for the development and review of the study programmes by providing specific examples of the review of the study programmes, the aims, and regularity, as well as the stakeholders and their responsibilities. If, during the reporting period, new study programmes have been developed within the study field, describe the procedures of their development (including the process of the approval of study programmes).

The principles of the opening and management of new study directions and study programmes are determined by the “Daugavpils University Regulations on the Opening and Management of Study Directions and Study Programmes”[1]. The purpose of the regulations on the opening and management of DU study directions and study programmes is to determine the principles, content and implementation requirements for the opening and management of DU study directions and study programmes, in accordance with Act on HEI and other binding regulatory acts of the Republic of Latvia, DU Constitution and other binding DU regulatory documents. The regulations determine the procedure for opening, management, development and quality assurance of DU study directions and study programmes, the procedure for closing study directions and study programmes, the principles of the study direction council, as well as the duties, rights, and qualification requirements for the head of study direction and study programme directors. The development of a new study programme is initiated in accordance with the DU strategy or other strategic and study process regulatory documents at least one academic year before starting the study programme implementation.

During the reporting period, consolidation of AMSP “Biology” and AMSP “Nature Recreation” was carried out within the study direction “Life Sciences” in accordance with the “Daugavpils University Study Programme Development and Consolidation Plan”. As a result of the consolidation, a new AMSP “Biology” was created. The consolidation of study programmes was implemented in order to prevent the decrease in the number of students and the fragmentation of study programmes, to reduce the overlap and fragmentation of study courses. Within the framework of the SAM project “Reducing the fragmentation of study programmes and strengthening the sharing of resources at Daugavpils University" (No. 8.2.1.0/18/A/019), the assessment of the content of the Master’s study programmes implemented in the study direction “Life Sciences”, as well as the available resources and technical provision at DU were performed. According to the recommendations of experts of the branch (including representatives of employers) involved in the development of the programme within the project, a new study content of AMSP "Biology" has been developed.

In the development of the content of the newly created AMSP “Biology” specialization direction “Aquaculture”, recommendations provided in the study commissioned within the framework of the project “Improving Daugavpils University Management and Management Competencies”, agreement No. 8.2.3.0/18/A/010, implemented by the Latvian Institute of Hydroecology, as well as human resources development forecasts in the field of STEM and the recommendations contained in the analysis of the suitability of DU study programs for the development needs of science

branches (environmental science, hydrobiology, chemistry) were taken into consideration.

The developed characteristics of the study programme was discussed and analyzed at the meeting of the Council of the DU study direction “Life Sciences” on 6 November 2020, minutes no. 6/2020, DU Faculty of Natural Sciences and Mathematics Council meeting on 12.11.2020, minutes No. 22, at DU Council of Studies meeting on November 16, 2020, minutes No. 33. The characteristics of the study programme has been approved at the DU Senate meeting on November 30, 2020, minutes no. 11. AMSP “Biology” was licensed on 19.05.2021 (license number 04041-103).

[1] “Daugavpils University Regulations on the Opening and Management of Study Directions and Study Programmes”(in Latvian). Available: https://du.lv/wp-content/uploads/2021/12/3_DU_Studiju-virzienu-un-studiju-programmu-atversanas-un-parv-nolikums.pdf [viewed 20.02.2023]

2.2.3. Description of the procedures and/or systems according to which the students are expected to submit complaints and proposals (except for the surveys to be conducted among the students). Specify whether and how the students have access to the information on the possibilities to submit complaints and proposals and how the outcomes of the examination of the complaints and proposals and the improvements of the study field and the relevant study programmes are communicated by providing the respective examples.

Submitting and considering the complaints and proposals from students is an essential component of the study quality system. To ensure the improvement of the quality of studies, it is necessary to analyze the processes, collect clear survey of the causes for the complaints submitted and provide feedback to the person who submitted the complaint or proposal.

The procedures and systems of submitting complaints and proposals from students

Students have the right to submit complaints and proposals to the study programme director, the head of the major department, dean, vice-rectors, and rector. Complaints and proposals, depending on their degree of significance, are accepted orally, in writing, and electronically.

Complaints and proposals are accepted from individuals or collectively, openly (with identified submitter) and anonymously. Drafting the submissions and their acceptance at DU is executed in accordance with the procedures set in “The Law on Submissions”[1]. Submissions concerning possible violations of the norms of “DU Code of Ethics”[2] including action or conduct outside DU, if that affected the prestige of DU, may be made by DU academic, administrative, and general staff, students. On behalf of students submission may be made by the Student Council that may represent the student in the course of examining the complaint.

Submissions from students and the academic staff concerning the infringements and violations of the academic freedom and rights that are stated in the Constitution are examined by DU Academic Court or Arbitration.

Submitting open complaints and proposals

DU students may submit open complaints and proposals in a free form or in accordance with the procedures stated in DU interior normative acts.

Submitting anonymous complaints and proposals

The following tools for submitting complaints are available at DU:

- CSQA section available on the DU website, where anyone can submit a complaint / proposal to CSQA anonymously[3]
- Questionnaire of trust designed by the Student Council [4] *(available in Latvian only)*

Anonymous complaints are received electronically, after examination and content analysis of the complaint CSQA leads negotiations with the involved parties and in case of necessity conducts the monitoring of the study quality. In the prior practice, in examination of anonymous complaints CSQA closely cooperated with the Student Council, examining the situation and taking steps for the improvement of the study quality, because, in accordance with "The Regulation of Daugavpils University Student Council"(accessible in Latvian), the Student Council has the right to request and receive information from any structural unit of DU concerning all matters in its competence that concern students' interests.

In order to examine complaints related to enrolment, "Order whereby a person may dispute and appeal decisions related to enrolment to a study programme at Daugavpils University" is in force at DU, in accordance with which a person may dispute the decision of the Enrolment commission on the results of the competition by submitting an application to DU rector in seven working days' time after the publication of the competition results.

In accordance with "The Regulation on Studies at Daugavpils University"[5] , students have the right to submit to the faculty dean a motivated appellation about the results of examination within one working day after their announcement. Appellation is examined in three working days' time by a commission formed on the dean's decision by the participation of the examinator and the head of the respective department.

Information accessibility

All interior administrative acts, in accordance with which students may submit complaints and proposals are publicly available from DU website. Students may receive information by addressing the study programme director, dean, CSQA, and the Student Council.

Feedback in examining complaints and proposals

CSQA coordinates the examination of students' complaints and proposals and, if needed, organizes express surveys, executes study quality monitoring by attending classes and talking with students and the academic staff in order to ensure full bodied analysis of the conflict or problem. During the implementation of the remote study process in 2019/2020 spring semester, there was organized a survey of DU students on the quality of the implementation of the remote learning process, as a result of which the offer of the library services was improved, as well as the methods and tools for organizing remote learning were diversified for all the university students including the students of the study direction "Health Care". During the implementation of the remote study process in the academic years 2019/2020, 2020/2021 and 2021/2022, the head of the study direction and the directors of the study programmes regularly communicate with the students of all levels, monitoring the study process of the study programmes of the direction.

Since 2013, CSQA has received oral and written complaints about the study quality (e.g. discrepancy between the requirements for crediting indicated in the study course description and the forms of examination of students' knowledge and skills in the study process, proposals for the timetable, communication problems, etc.). All complaints and proposals are always discussed with the involved parties. In the examination of complaints and proposals there participates study programme director and, if needed, also the head of the study direction and vice-rector for studies.

After the situation analysis, possible solutions are found, students are always informed about the implementation of the complaints and/or proposals, CSQA provides consultations in the matters of study quality.

It is worth noting that the University regularly (once a month) holds meetings of the management and the head of the CSQA with the Student Council, where students' problems, complaints and recommendations for improving the quality of studies are identified and discussed.

[1] "The Law on Submissions" (in Latvian). Available: https://likumi.lv/ta/id/164501-iesniegumu-likums [viewed 20.02.2023]

[2] „DU code of ethics"(in Latvian). Available: https://du.lv/wp-content/uploads/2021/12/Etikas-kodekss.pdf [viewed 20.02.2023]

[3] Study Quality Assessment Centre. Available:

https://du.lv/en/about-us/study-quality-assessment-centre/ [viewed 20.02.2023]

[4] Trust questionnaire drawn by the Student Council. Available: https://du.lv/en/students-council/ [viewed 20.02.2023]

[5] "Regulations on Studies at Daugavpils University". Available: https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf [viewed 20.02.2023]

2.2.4. Provide information on the mechanism for collecting the statistical data, as developed by the higher education institution/ college. Specify the type of data to be collected, the regularity of collection, and the way the information is used to improve the study field. Describe the mechanism for obtaining and providing feedback, including with regard to the work with the students, graduates, and employers.

When collecting physical person data, DU collects and processes person data for concrete, clear, and lawful reasons and exclusively according to the procedure and amount stated in the normative acts.

DU operates informative system DUIS, that holds statistical data and information on study programmes, students, and academic staff members. The system is accessible from DU inner network. Data are entered into DUIS by study programme directors, faculty records managers; they are summarized and verified by the Department of Studies. At the end of each month the data from DUIS system are exported to State Education Information System (SEIS). Data export is executed in accordance with the regulations of the Cabinet of Ministers No. 276 of 25 June 2019 "Terms of State Education Information System"[1]. SEIS data export entails person data of DU students, information of students' status (matriculated and ex-matriculated student number, their status changes, e.g. semester of studies, students being in an academic withdraw, etc.) and other binding information.

One of the main instruments contributing to the improvement of the study directions is student survey that is announced by the Centre of Study Quality Assessment 3 times a year – for the first year students 2 months after beginning the studies, after the winter graduation, and after summer graduation. In particular study programmes student surveys are organized at the end of each

semester. Based on the data and information provided in the surveys, in case of need CSQA carries out lecture auditing and individual student group surveys as well as organizes interviews with the academic staff concerning the measures of the study quality improvement.

The data gained in surveys are collected in DU survey system (Open Source Project LimeSurvey), data are analyzed and their results are reflected in the study direction self-assessment reports.

DU organizes also alumni and employer surveys. Alumni survey[2] data contain the information on the trends of alumni's employment, assessment of the acquired study programmes and proposals for their improvement. Employer surveys [3] are executed and their data are summarized by the study programme directors. Their aim is obtaining proposals for the improvement and development of DU study content.

The analysis and interpretation of the data systematically obtained are used for the improvement of the study direction. The data of students and employers' surveys ensure the compliance of the aims and tasks of the study direction programmes with the requirements of the market and society, allowing for tracking and evaluating the quality of each study course, its compliance with the aims and tasks of the programme.

Great attention is paid to students' satisfaction with the quality of delivery of the study programmes and study courses. The results of the surveys are discussed at the meetings of the council of the study direction. The information obtained is passed on to the director and the teaching staff implementing the study programme. Evaluating the quality of the programmes of the study direction and certain study courses provides for taking a decision regarding necessary changes in the content of the study courses or in the organisation of the study process.

Mechanism of receiving and providing feedback (working with students, alumni, employers)

For the study programme elaboration to be compatible with the labour market demands, special significance is attributed to the feedback received from students and alumni. Students and alumni assess the proceeding of the study programme as well as the applicability of the acquired knowledge, skills, and competences in professional activity, thus the feedback becomes a valuable element of the study process improvement.

The SQAC at the end of each academic year organizes a student survey the results whereof provide information on the assessment of the study quality and related aspects. Student survey is available in e-environment. Alumni and employer survey questionnaires are elaborated as well. The results of student surveys are taken into account when planning the next academic year, assessing the pedagogical and professional competences of the lecturers, the availability of the study materials and sources, the involvement of foreign teaching staff, and other related issues.

Graduate student and employer surveys are conducted by representative sampling. Employers are surveyed after internships, the survey of employers not involved in internship provision takes place every two years on average. Questionnaires or interviews of graduates are organized both immediately after graduation and several times after graduation (after six months, a year, three years). After processing the obtained data and reviewing the results, changes are introduced into the content of the study programme. The director of the study programme informs all involved parties (students, teaching staff, employers, graduates) about the changes introduced, thus providing feedback. The recommendations or reprimands mentioned in the surveys and the prevention mechanisms are discussed in meetings with both the teaching staff and the students of the study direction, as well as in consultations with the representatives of the sector. Student representatives participate in the direction councils and in the development of solutions to the comments provided in the surveys.

Student, alumni, and employer survey results are used to review and improve the study programme content. The study programme director reacts to all justified opinions, proposals, and reprimands expressed in the survey questionnaires, and upon necessity they are discussed by the study direction council. After introducing the changes in the study programme content, the study programme director informs all the parties involved (students, academic staff members, employers, alumni), thus providing a feedback.

As an example, the 2021/2022 academic year is attached to the appendix. compilation of student, graduate and employer survey results (*2.2.4. Analysis and evaluation of the results of all surveys*).

[1] Regulations of the Cabinet of Ministers of 25 June 2019 No. 276 "Rules of State Education Information System"(in Latvian). Available: https://likumi.lv/ta/id/307796 [viewed 20.02.2023]

[2] Graduate survey (in Latvian). Available: https://aptaujas.du.lv/index.php/764263/lang-lv [viewed 20.02.2023]

[3] Employer survey (in Latvian). Available: https://aptaujas.du.lv/index.php/544412 [viewed 20.02.2023]

2.2.5. Specify the websites (e.g., the homepage) on which the information on the study field and the relevant study programmes is published (in all languages in which the study programmes are implemented) by indicating the persons responsible for the compliance of the information available on the website with the information published in the official registers (State Education Information System (VIIS), E-platform).

All necessary information on studies, the faculty, study direction and and study programmes in Latvian and English is available on DU website and is accessible to students. DU website section "Studies"[1] contains information about DU faculties, implemented study programmes, opportunities of auditing study courses, as well as further education opportunities provided by DU life long education centre. DU website section "Study programmes"[2] contains information on all study programmes implemented at DU, including ABSP "Biology"[3], AMSP "Biology"[4] and DSP "Biology"[5]. The website provides information about admission requirements for each study programme, study courses to learn (including study course descriptions in Latvian and English), opportunities after graduating as well as contact information of the study programme director.

The International and Public Relations Department is responsible for the compliance of the information on the DU study fields available on the DU website with the information available in the official registers. In turn, the Study Department is responsible for regular and timely provision of information about students (SEIS).

[1] DU Studies. Available: https://du.lv/en/studies/ [viewed 20.02.2023]

[2] DU Study programmes. Available: https://du.lv/en/studies/study-programmes/ [viewed 20.02.2023]

[3] Information on ABSP "Biology". Available: https://du.lv/en/studies/study-programmes/academic-bachelors-study-programmes/biology/ [viewed 20.02.2023]

[4] Information on AMSP "Biology". Available: https://du.lv/en/studies/study-programmes/academic-master-study-programmes/biology/ [viewed 20.02.2023]

[5] Information on DSP "Biology". Available: https://du.lv/en/studies/study-programmes/doctoral-study-programmes/biology/ [viewed 20.02.2023]

2.3. Resources and Provision of the Study Field

2.3.1. Provide information on the system developed by the higher education institution/ college for determining and redistribution of the financial resources required for the implementation of the study field and the relevant study programmes. Provide data on the available funding for the scientific research and/or artistic creation activities, its sources and its use for the development of the study field.

The study direction "Life Sciences" is funded from the state budget financing for studies (subsidy) and tuition fees. The cost calculation for one student in the programmes of the study direction was made at the Department of Finance and Accounting of DU, including the salary fund and the employer's SSIA, the costs of business trips, materials, energy resources and inventory costs, the costs of purchasing books, equipment and investments, as well as the costs for social security of students.

The study programmes of the study direction "Life Sciences" are funded from the state budget financing and tuition fees. The main source of funding for study programmes is the state budget. It is also possible to learn in the study programme for a fee. Students have the opportunity to apply for tuition fee discounts. More information about tuition fees and discounts [1].

For the development of science in the DU study field "Health Care", funds for the development of the science base are allocated from the Ministry of Education and Science. The study field obtains the funds intended for the development of science on the basis of the scientific achievements and indicators of the lecturers for the previous year, which are evaluated by the DU Department of Science.The assessment of the efficiency of the scientific work of the academic staff of DU is carried out in accordance with the "Procedure for evaluating the effectiveness of the scientific work of the academic staff of the University of Daugavpils" (available from the internal network of DU).

DU academic staff (assistants, lecturers, docents, associate professors, professors, research assistants, researchers, leading researchers) have the right to receive within the available DU budget financing royalties for scientific publications indexed in the Web of Science and/or SCOPUS databases, and scientific monographs. Payment for scientific publications is made in accordance with the "Procedure in which scientific publications and monographs of academic staff of Daugavpils University are paid" developed by DU (available from the internal network of DU).

DU academic staff (assistants, lecturers, assistant professors, associate professors, professors, research assistants, researchers and leading researchers) within the available DU budget financing have the right to receive remuneration for the citation characterizing Hirsch index in SCOPUS and/or Web of Science (hereinafter referred to as WoS) databases. The amount of compensation is

calculated according to the “Procedure in which the academic staff of Daugavpils University receives remuneration for the Hirsch index”.

DU academic staff have the opportunity to participate in the annual Daugavpils University research project competition and receive funding for the implementation of scientific research [2]. The general goals of the research project competition are to ensure the development of DU’s scientific activity and scientific excellence; promote the research growth of DU academic, scientific staff and students; promote the practical applicability of research results, cooperation with the private sector and attraction of additional external funding; to form innovative interdisciplinary research groups for the implementation of current research topics. The right to submit individual or research group projects to the competition is granted to representatives of the academic and scientific staff working on the basis of an employment contract: professors, associate professors, docents, leading researchers, researchers, lecturers, assistants, research assistants, doctoral students and applicants for a doctoral degree. The total funding amount of the project competition for the current year is determined by the DU Budget Commission. The allocated project tender fund for 2023 was EUR 51,000.00. The maximum allowable amount of funding for one research project is EUR 3000.00.

Students of DU study programmes are eligible for applying to student research project competition[3]. The general goals of the research project competition are to ensure the development of DU’s scientific activity and scientific excellence; promote the research growth of DU students; promote the practical applicability of scientific results, cooperation with the private sector and attraction of additional external funding; to form innovative interdisciplinary research groups for the implementation of current research topics; involve DU bachelor and Master students in scientific activity; promote the increase in the number of publications indexed in the Web of Science and/or SCOPUS databases at DU. The right to submit projects to the student research project competition is granted to academically successful students in DU bachelor and Master study programmes who are enrolled in the respective level study programme for the first time. If the student terminates studies, the scholarship payment is stopped starting from the following month. During the implementation of the project, it is planned to publish at least one publication in editions indexed in the Web of Science and/or SCOPUS databases. For the project implementation, bachelor and Master students receive a scholarship of EUR 200.00 per month for annual 10 months duration. The maximum available amount of funding for one research project and the total amount of funding for the project competition for the given year are determined by the DU Budget Commission. The project tender fund in 2023 was EUR 24,000.00, while the maximum allowable amount of funding for one research project was EUR 2,000.00.

Funding for the improvement of the educational material and technical base (additional improvement of auditoriums and laboratories, purchase of educational literature and modern research equipment, purchase of visual aids and software, etc.) is mainly provided from various projects (e.g. ERDF, ESF).

[1] DU tuition fees and reduction (in Latvian). Available: https://du.lv/gribu-studet/studiju-maksa-un-atlaides/ [viewed 20.02.2023]

[2] DU research project competition for 2023 (in Latvian). Available: https://du.lv/aktualitates/daugavpils-universitate-izsludinats-ieksejo-petniecibas-projektu-konkurss-2023-gadam/ [viewed 20.02.2023]

[3] DU student research project competition for 2023. Available: https://du.lv/aktualitates/daugavpils-universitate-izsludinats-studejoso-petniecibas-projektu-konkurs

-2023-gadam/ [pārlūkots 20.02.2023]

2.3.2. Provide information on the infrastructure and the material and technical provisions required for the implementation of the study field and the relevant study programmes. Specify whether the required provision is available to the higher education institution/ college, available to the students, and the teaching staff.

The implementation of the study programmes included in the study direction “Life Sciences” is ensured by several study and research structural units of DU - Institute of Life Sciences and Technologies, Faculty of Natural Sciences and Mathematics. To ensure the study process and conduct scientific research, students are provided with more than 20 specialized offices and teaching or scientific research laboratories at the Institute of Life Sciences and Technologies (Department of Biotechnology, Department of Ecology, Department of Technologies (including the Center for Innovative Microscopy), Department of Biosystematics and Applied Chemistry department), as well as in the Faculty of Natural Sciences and Mathematics (Department of Anatomy and Physiology, Department of Chemistry and Geography). See the most important equipment available in scientific and teaching laboratories in the appendix (*2.3.2.Infrastructure and un material and technical provision).* The field courses envisaged in the study programmes are conducted in DU Study and Research Center “Ilgas”. The specialization study direction “Aquaculture” offered within AMSP “Biology” also involves the DU agency “Latvian Institute of Hydroecology”, which offers students to use the institute’s scientific laboratories and equipment for the implementation of specialized research in hydroecology. The mobile complex of DU pond aquaculture scientific laboratories in Nagli is also available for those studying in the “Aquaculture” specialization. Students whose bachelor, Master, or doctoral theses require field research have at their disposal the research equipment for field research of DU Institute of Life Sciences and Technologies and Latvian Institute of Hydroecology.

Within the last 10 years, DU has purposefully invested in the modernization of the study and research infrastructure, as a result of which students have access to modern teaching and research laboratories equipped with the necessary laboratory and field research equipment to ensure the study and the research process. Infrastructure modernization projects implemented by DU, within the framework of which the study and research opportunities for the students of the study field “Health Care” have been improved, are the following ones:

- ERDF project “Modernization of STEM, health care and art study programmes at Daugavpils University” (agreement No. 8.1.1.0/17/I/005, project implementation time: 2017 – 2020, DU total costs: 1 425 138.00 EUR). Within the framework of the project, the material and the technical base of study programmes has been developed, equipment, laboratory materials, inventory and tools have been purchased, as well as library collections have been supplemented and information technology equipment has been developed to offer high-quality education that meets international standards and is competitive.
- ERDF project “Development of research infrastructure in the fields of smart specialization and strengthening of institutional capacity at Daugavpils University” (agreement No. 1.1.1.4/17/I/008”, project implementation time: 2017 – 2020, DU total costs: 3,069,684, 21 EUR). Within the framework of the project, infrastructure has been developed by purchasing new equipment in the priority development areas defined in the internationally recognized research programmes: mathematics, physics, nanomaterials, materials engineering, biology.
- ERDF project “Improvement of the quality of Daugavpils University study programmes and

ensuring the environment accessibility" (agreement No. 2010/0115/3DP/3.1.2.1.1/09/IPIA/VIAA/021, project implementation time: 2010 – 2015, DU total cost: EUR 16 715 991). Within the framework of the project, the auditoriums of the study building at 1 Parādes Street were renovated and adapted for people with functional disorders, their energy efficiency was increased, as well as the equipment, tools, facilities and information technologies were modernized. The building of the DU Life Sciences and Technology was attached to the existing building of DU; it has study and scientific laboratories that are fitted up with modern equipment within the project. In the DU Study and Research Centre "Ilgas", the building of Ilgas manor was renovated; the building has study and scientific laboratories, study auditoriums and collection storage rooms. The DU library, equipped with new equipment and furniture, was also modernized. Within the project, in all the modernized premises, access to people with various functional disorders is provided.

All DU students are provided not only with modern study environment, but also with modern living infrastructure – renovated dormitories, a sports complex with a swimming pool, etc.

The study and the research processes are provided in sufficient quantities with the necessary photocopying equipment, visual presentation equipment, video filming and video reproduction equipment, modern photo equipment and audio equipment. The students and the lecturers have constant access to the Internet and the Internet connection of the local DU network, e-learning environment Moodle, as well as the opportunity to use e-mail and teleconferencing, various online platforms, such as ZOOM.

2.3.3. Provide information on the system and procedures for the improvement and purchase of the methodological and informative provision. Description and assessment of the availability of the library and the databases to the students (including in digital environment) and their compliance with the needs of the study field by specifying whether the opening times of the library are appropriate for the students, as well as the number/ area of the premises, their suitability for individual studies and research work, the services provided by the library, the available literature for the implementation of the study field, the databases available for the students in the respective field, the statistical data on their use, the procedures for the replenishment of the library stock, as well as the procedures and possibilities for the subscription to the databases.

Replenishment of the library collection and subscription of databases take place at the request of the lecturers of the faculties. Applications for the purchase of books are regularly (every academic year) reviewed and approved by the DU Budget Commission, thus implementing a mechanism for purchasing the latest publications for the DU library. The library does not digitize the collection, but the final theses of the DU students are uploaded to the library's information system. The library regularly informs the faculties about the latest literature, database trials and subscription options, so that the faculty lecturers and students can get acquainted with new offers.

The lecturers and the students have access to the services offered by the DU Library – the library's electronic catalogue, ordering, reserving and renewing books on the Internet, automated service provide to the user, as well as access to electronic databases. The library users have the opportunity to use the open access reading room with 60 workstations, incl. 15 Computerized, Subscription, Bibliography and Information Sectors. The total area of the library is 1,000 m^2, including premises to service the users – 400 m^2. The library collection consists of 267,655 items,

incl. books – 233,868, periodicals – 20,322, other editions – 13,465. Number of books in the field of biological sciences – 3487, incl. 923 in English, that is 26% of the books in the field of biology; in the field of environmental sciences – 1995, incl. 300 in English, which is 15% of the books in the field of environmental science.

- EBSCO Publishing (it includes 8 databases: Academic Search Elite, Business Source Premier, MasterFILE Priemer, Newspaper Source, ERIC, Business Wire News, MEDLINE, Health Source - Consumer Edition, Agrikola); there are around 10,000 scientific journals in a number of disciplines (including biology and environmental sciences) in English.
- Cambridge Journals online: 100 scientific journals in several disciplines (including biology and environmental sciences) in English.
- Science Direct: multidisciplinary database with full texts of around 380 journals (including biology and environmental sciences) in English.
- Web of Science: multidisciplinary database (including biology and environmental sciences) in English.
- Likumi.Lid.lv: normative documents of the Republic of Latvia and the European Union in the field of environmental and nature protection.
- Letonika: Letonika is a Latvian reference and translation system on the Internet. Currently, these resources include the Latvian Encyclopaedic Dictionary, Glossary of Terms, computer dictionaries for translation and interpretation, and more.

Students also have access to the scientific libraries of the DU laboratories with more than 50 regularly supplemented foreign scientific journals. The computers in the computer classrooms of the Faculty of Natural Sciences and Mathematics, equipped with the relevant software, are offered for the development of studies and bachelor's theses, as well as for the creation of teaching aids.

The opening hours of the library are suitable for the needs of students. After the students' complaints about the short working hours of the library on working days and unavailability on Saturdays, the working hours of the DU library have been changed since the autumn semester of 2018 (on working days: from 9.00 am to 8.00 pm, on Saturdays: from 10.00 am to 4.00 pm). Students gave a positive evaluation.

2.3.4. Provide a description and assessment of information and communication technology solutions used in the study process (e.g., MOODLE). If the study programmes within the study field are implemented in distance learning, the tools specially adapted for this form of study must also be indicated.

DU has developed an e-learning environment (Moodle), as a result of providing direct communication (e-mail, consultations) information is available in each study course. DU lecturers systematically use the e-learning environment Moodle[1] (https://estudijas.du.lv/ - available in Latvian) and place various study materials in it: materials for lectures, seminars and practical classes, which support students' independent work. At the same time, e-learning reduces the risk of students dropping out in cases where it is not possible to attend all study courses in full due to their work or health conditions. Activation of the e-learning environment is an important step in promoting the possibility to keep the critical mass of students, thus ensuring the training of specialists not only for the region of Eastern Latvia, which is represented by the majority of the DU students but also for other regions of Latvia and abroad.

DU has developed an e-learning environment (Moodle), as a result of providing direct

communication (e-mail, consultations) information is available in each study course. DU lecturers systematically use the e-learning environment Moodle (https://estudijas.du.lv/ - available in Latvian) and place various study materials in it: materials for lectures, seminars and practical classes, which support students' independent work. At the same time, e-learning reduces the risk of students dropping out in cases where it is not possible to attend all study courses in full due to their work or health conditions. Activation of the e-learning environment is an important step in promoting the possibility to keep the critical mass of students, thus ensuring the training of specialists not only for the region of Eastern Latvia, which is represented by the majority of the DU students but also for other regions of Latvia and abroad.

The study courses also include sending homework and tests via e-mail or adding them to the e-learning environment Moodle, receiving work evaluations and reviews by e-mail, consultations in the e-environment, the opportunity to use library and Internet resources. Thus, by integrating a variety of modern IT solutions (e-mail, Moodle, ZOOM, Skype, Facebook), the programme offers more flexible conditions for e-learning. The e-learning environment Moodle is synchronized with the DU information system DUIS, which facilitates students' access to study courses created in the e-learning environment without additional registration.

DU regularly organizes professional development courses for the lecturers, for example, development of study courses in the e-learning environment Moodle, use of the e-learning environment MOODLE in the distance learning process, assessment in the e-learning environment MOODLE. If necessary, the lecturers are provided with individual consultations. The students can receive technical support at the Student Service Centre and the Dean's Offices of the faculties.

In the e-learning environment Moodle, lecturers can also post their lectures in video format. The filming process of video lectures is carried out by the Multimedia Centre of the Department of Informatics and the Information and Communication Technologies Department. In the auditorium at DU, 1a Parādes Street, DU, modern equipment is available, which allows to create educational, informative and advertising video materials, as well as provides live webcasts of conferences. Video lectures are stored on the DU server and are available in the Moodle environment for each corresponding study course.

DU has an information system DUIS that contains descriptions of all study courses, a timetable of classes, and a student can see his/her progress and individual orders related to the study process in his/her profile.

[1] E-learning environment Moodle (in Latvian). Available: https://estudijas.du.lv/ [viewed 20.02.2023]

2.3.5. Provide information on the procedures for attracting and/or employing the teaching staff (including the call for vacancies, employment, election procedure, etc.), and the assessment of their transparency.

Election to an academic position takes place in accordance with the requirements of "Regulations on elections to academic positions at Daugavpils University"[1]. According to the regulations, academic positions at DU are professor, associate professor, leading researcher, docent/assistant professor, lecturer, researcher, assistant, research assistant.

The number of positions of assistants, lecturers, docents is determined by the Rector according to the amount of the study work to be performed, upon the proposal of the Faculty Council. The number of positions of researchers, leading researchers and scientific assistants is determined by the Rector according to the need and funding possibilities, upon the proposal of the Institute/Scientific Council. The number of associate professor positions in the relevant science or art subfields is determined by the rector according to the need and funding opportunities after approval by the DU Senate.

Information about vacancies for academic positions and competition announcements are published on the DU website and/or in the official publication of the Republic of Latvia "Latvijas Vēstnesis", thus giving an opportunity to any interested person to apply for a job at DU within a month after the announcement of the competition. DU can elect both citizens of the Republic of Latvia and foreign citizens whose academic education and professional qualifications meet the requirements of the science or art branch, study and research work at DU, and who are proficient in the national language and professional English.

Elections of docents, leading researchers, lecturers, researchers, assistants and research assistants, by open voting, take place in the Councils of faculties or Scientific Councils of scientific institutes no later than within three months from the date of the announcement of the competition. When electing docents and leading researchers, the qualifications of members of the Faculty Council or the scientific institute Council must meet the requirements of the Doctoral Council. The results of the elections of docents and leading researchers are confirmed at the DU Senate meeting.

Elections of professors and associate professors, by open voting, take place in the council of professors of the relevant branch of science.

[1] "Regulations on elections in academic positions at Daugavpils University"(in Latvian). Available: https://du.lv/wp-content/uploads/2021/12/Nolikums-par-velesanam-akademiskajos-amatos-DU_APSTIPRINATAIS.pdf [viewed 20.02.2023]

2.3.6. Specify whether there are common procedures for ensuring the qualification of the academic staff members and the work quality in place and provide the respective assessment thereof. Specify the options for all teaching staff members to improve their qualifications (including the information on the involvement of the teaching staff in different activities, the incentives for their involvement, etc.). Provide the respective examples and specify the way the added value of the possibilities used for the implementation of the study process and the improvement of the study quality is evaluated.

DU developed internal regulatory enactments and mechanisms that regulate the qualification and quality assurance of academic staff:

- Regulations on elections to academic positions at Daugavpils University [1];
- Procedure for evaluation of the scientific activity of the Daugavpils University academic staff[2];
- Student's surveys .

In order to ensure the implementation of high-quality and innovative study programmes of the

study field "Life Sciences", it is important to attract highly qualified academic staff – recognized specialists with innovative capacity, incl. the ability to use modern working methods, and leadership competence.

For the selection of teaching staff to be involved in the ABSP "Biology", AMSP "Biology" and DSP "Biology", compliance of the qualification of the teaching staff with the requirements set by the regulatory acts, as well as the knowledge of the national language and foreign languages is assessed.

The following basic criteria are set in the evaluation system of the academic staff:

- Excellence – sustainable and continuous development, ensuring process and resource management;
- ability to effectively use academic freedom – to freely choose the directions and methods of academic activity, to create and publish new knowledge, to openly discuss its content, to look for opportunities to implement it in practice;
- academic culture – collegial cooperation with students and other academic staff based on the principles of academic ethics, mutual respect, demandingness, interest and support;
- responsibility for one's work in front of the public and the state in accordance with the DU quality management system and quality culture.

The qualifications of the academic staff meet the requirements of the University Law, as all lecturers have a master's degree or a doctorate in science. Study courses can be delivered only by lecturers that hold a Master's degree – both the elected lectures and guest lecturers.

In order to ensure the implementation of the recommendation, several professional development programs were offered in DU in 2020-2022 to improve the professional qualification of lecturers in the framework of the ESF project "Strengthening the professional competence of the academic staff of Daugavpils University strategic specialization areas" (No. 8.2.2.0/18/A/022), for example, "Communication and Communication Skills", "Leadership ABC", "Leadership in the style of coaching", "Communication", "Emotional intelligence in education", "Basics of developing e-learning materials and virtual learning platforms", "Trends in the use of educational technologies 21. century". Within the framework of the mentioned project, self-growth lectures on the commercialization of inventions, nutrition, body health, personality charisma and prevention of burnout risks, anti-stress days, 24-hour professional efficiency promotion camps, experience-based training and company visits in Latvia will be organized for academic staff. By participating in seminars, academic staff have the opportunity to improve their professional competence and develop learning skills.

Within the framework of the ESF project "Reducing the fragmentation of study programs and strengthening the sharing of resources at Daugavpils University" No. 8.2.1.0/18/A/019, seminars were organized for the development and integration of study course support materials necessary for lecturers into the study process.

DU academic staff actively use the opportunities offered by the "ERASMUS+" program to improve their professional skills - DU lecturers regularly visit foreign cooperation universities as part of the program or participate in staff training, improving professional competences, ensuring participation in training, work observation at a foreign cooperation university or industry organization.

Foreign mobility gives DU lecturers and staff the opportunity to gain knowledge and specific skills by learning from the experience and good practices of foreign partners, as well as to improve practical skills necessary for work at DU and professional development. Participation in the mobility program encourages the academic staff to expand and improve the range and content of the offered study courses, and also allows students who do not have the opportunity to participate in

the mobility program to benefit from the knowledge and experience provided by the academic staff of universities in other European countries and foreign guest lecturers, promotes knowledge and the exchange of experience in pedagogical methods between European higher education institutions. Lecturers in the field of study improve their qualifications by doing internships abroad and lecturing in foreign educational institutions (2.*5.3.Incoming and outgoing mobility Teaching staff*).

Most of the teaching staff involved in the realization of the study field participate in various scientific and academic activities, thus developing new skills and promoting professional growth. For the summary of quantitative data on scientific and/or applied research and/or artistic creative activities corresponding to the field of study during the reporting period (academic staff publications, participation in conferences, artistic creative activities, participation in projects, etc.) see 2.4.4. in the appendix.

Improving the professional competence of teaching staff involved in the realization of the study field by participating in trainings, international mobility programs, actively engaging in scientific activities, project implementation, etc. in scientific and academic activities, provides significant added value for the overall improvement of the study process and improvement of study quality.

[1] Regulations on elections in academic positions at Daugavpils University versitātē (in Latvian). Available: https://du.lv/wp-content/uploads/2021/12/Nolikums-par-velesanam-akademiskajos-amatos-DU_APSTIPRINATAIS.pdf [viewed 20.02.2023]

[2] The procedure for evaluating the scientific activity of the academic staff of Daugavpils University (in Latvia). Available: https://old.du.lv/wp-content/uploads/2016/01/zinatniskas-_aktivitates_vertesanas_kartiba.pdf [viewed 20.02.2023]

2.3.7. Provide information on the number of the teaching staff members involved in the implementation of the relevant study programmes of the study field, as well as the analysis and assessment of the academic, administrative (if applicable) and research workload.

One of the most important factors of quality assurance in the implementation of the programs of the "Life Sciences" study direction is the teaching staff. The realization of the study direction is provided by 34 lecturers. For 25 lecturers, the primary place of election is DU, 9 are visiting lecturers. 4 lecturers have a master's degree (in turn, there are 2 applicants for a doctoral scientific degree), 30 lecturers (88%) have a doctoral scientific degree.

The knowledge of the national language of the academic staff employed in the field of study "Life Sciences" complies with the regulations on the extent of knowledge of the national language and the procedure for testing the proficiency of the national language for the performance of professional and official duties, respectively, they allow any course in the field of study to be fully taught in the national language.

The workload of lecturers is determined in accordance with the “Procedure for Accounting the Workload of the Academic Staff at Daugavpils University”. If the lecturer's study work is more than 1000 hours per academic year, then in accordance with the procedure prescribed by law, the work overload is calculated only for the study work for which the company's contract for the performance

of academic work is concluded.

The formation of the teaching staff considers the stability of the number of academic positions and persons, equal distribution of workload; the involvement of industry professionals in the study process is promoted in order to ensure the quality implementation of professional programs. Attracting lecturers with a doctoral degree is being intensified in order to implement high-quality study programs in accordance with regulatory enactments.

The results of the scientific activity of the academic staff are summarized once a year, in accordance with the "Procedure for Evaluating the Efficiency of the Scientific Work of the DU Academic Staff". Based on the evaluation of the efficiency of scientific work, the Science Department may decide to recommend to the DU Scientific Council and Senate to evaluate the amount of scientific activities of DU structural units and/or remuneration of academic staff and suitability for the position.

Basic information on the academic staff involved in the study direction implementation (*2.3.7.Basic information about teaching staff*), as well as CVs of the academic staff (*2.3.7.CV of academic staff*) are available in appendices.

Appendix 2.3.7. (*2.3.7.Statement_native language*) contains statement signed by the university rector to the effect that the state language proficiency of the academic staff involved in the implementation of the study direction programmes complies with the regulations on the state language proficiency level and the procedure for testing the state language proficiency for the performance of professional and official duties, whereas appendix 2.3.7. (*2.3.7.Statement_foreign_language*) provides statement on the respective foreign language proficiency (at least B2 level) of the academic staff involved in the implementation of the study direction programmes in compliance with EU language proficiency assessment levels, if the study programme or its part is implemented in a foreign language.

2.3.8. Assessment of the support available for the students, including the support provided during the study process, as well as career and psychological support by specifying the support to be provided to specific student groups (for instance, students from abroad, part-time students, distance-learning students, students with special needs, etc.).

The DU Student Service Center (SSC) operates at DU and its main task is to inform DU students about current issues, as well as to provide consultations and services. Key features of SSC are as follows:

- issue certificates to students (to the bank, the State Revenue Service and other institutions, as well as certificates about study leaves, elaboration and defense of bachelor and Master's theses, etc.);

- issue the signed study contracts to students;

- advise students on issues related to the study process, extracurricular activities and dormitories;

- participate in organizing informative events (career days, educational exhibitions, etc.);

- listen to, collect students' proposals and submit them to the appropriate structural units.

DU infrastructure has been modernized and adapted to improve the accessibility of the

environment for people with disabilities (movement, vision, hearing impairment), as well as there have been opened children's rooms for students, who are young parents, so that they could to change and feed their babies and a playroom to entertain the students' children while they are at their classes[1].

In 2016, the Latvian Association of Disabled People and their Friends "APEIRONS" awarded Daugavpils University a prize in the nomination "Education for All" on the grounds that "Daugavpils University, as a higher education institution, had done the most in ensuring accessibility of the environment. DU became accessible to people with special needs – the students have ideal conditions to attend full-time studies". DU modernized its premises and buildings not only for people with disabilities, but also for the visually impaired people, which is especially noted by the evaluators of the environmental accessibility competition, noting that "the building is easy to navigate and move around for everyone[2].

The students can use DU in various ways: computer classes and auditoriums – for consultations, meetings, library premises – for literature analysis, preparation of independent and research work, as well as specially equipped premises – for conferences, study and extracurricular activities (DU Sports Complex).

The lecturers and the students can receive medical support in a certified health office, where first aid in case of various illnesses is provided by a doctor's assistant (feldsher).

The Psychological Support Center (PSC) operates at DU, which provides psychological support to DU students and employees in solving various daily problems in personal, work related, or educational matters. PSC psychologists provide up to three free consultations per person. If necessary, the number of consultations can be increased. Counseling is organized on the premises of DU in person or remotely (online format) after prior agreement on the counseling time. PSC psychologists do not advise close colleagues and students they educate to avoid multiple relationships. PSC operates in accordance with the "Regulations of the Daugavpils University Psychological Support Center"[3].

DU has an active DU Student Social Support Program, the purpose whereof is to support academically successful DU full-time study programme students who reside in DU dormitories and have grave social and material conditions. The program provides 50% support to cover the monthly rent for one academic semester. The amount of the program support is up to 10% of the total number of students living in the dormitories.

DU has an active Career and Initiative Support Centre[4] aimed at promoting career development service, voluntary work and supporting intiatives facilitating the wellbeing of Latgale region residents enhancing their professional capacity, competitiveness, cooperation, and involvement. The Centre sets objectives of creating and providing education and initiative support environment for Latgale region residents; facilitating cooperation with state and non-government organizations in spheres of research, project management and professional recruiting; cooperating with Latvian and foreign education institutions, enterprises in education and practical placement provision; organizing forums, conferences, seminars for updating competences, involving DU academic staff; providing career counselling and education psychologist's services; providing consultations on conducting voluntary work. The Centre operates according to "Regulations of Daugavpils University Career and Initiative Support Centre".

The DU Department of International and Public Relations provides support functions for foreign students studying at DU.

[1] Availability of DU environment. Available: https://du.lv/en/about-us/environmental-accessibility/

[viewed 20.02.2023]

[2] "APEIRONS" annual award (in Latvian). Available: https://www.la.lv/ne-tikai-ieklut-eka-bet-ari-parvietoties-invalidu-apvieniba-apbalvo-labakos-vides-pieejamibas-veicinatajus [viewed 20.02.2023]

[3] Regulations of the Daugavpils University Psychological Support Center (in Latvian). Available: https://du.lv/wp-content/uploads/2023/02/Psihologiska-atbalsta-centra-nolikums.pdf [viewed 20.02.2023]

[4] Career and Initiative Support Centre at DU (in Latvian). Available: https://du.lv/karjeras-un-iniciativu-atbalsta-centrs/ [viewed 20.02.2023]

2.4. Scientific Research and Artistic Creation

2.4.1. Description and assessment of the fields of scientific research and/or artistic creation in the study field, their compliance with the aims of the higher education institution/ college and the study field, and the development level of scientific research and artistic creation (provide a separate description of the role of the doctoral study programmes, if applicable).

According to the collected data, the DU lecturers and the guest lecturers purposefully and regularly participate in various professional development activities in the fields corresponding to their scientific interests both in DU and in foreign universities. In addition to academic work at the university, the teaching staff has practical experience in the implementation of scientific projects and contract work related to life sciences. This type of activity contributes to a comprehensive understanding of the specifics of the industry, thus ensuring a direct unity of theory and practice during the study process.

The directions of the research work of the academic staff involved in the program are oriented towards the successful implementation of the study program and in most cases are related to the lecturer's specialization within the program. Lecturers prepare scientific articles, including in internationally peer-reviewed journals, participate in conferences and practical seminars, training, internships and various scientific events, publish textbooks and develop methodological materials, participate in international and national research projects.

The research carried out by the academic staff is a significant contribution both to the development of the field they represent, as well as to the development of the study programme, the improvement and updating of the study content. The research covers both the theoretical aspects and the topicalities and novelties of the fields, which are used in the study courses of the lecturers, thus promoting the interaction of the research and study process and significantly improving the quality of the study process. Student's participation in scientific and practical conferences and seminars as listener is also constantly stimulated.

The realization of the study programs of the study field "Life Sciences" is closely related to the research program defined in the DU strategy in the priority research direction "Biology". One of the most important tasks of the priority research direction "Biology" is the creation of an innovation

environment at Daugavpils University and the integration of scientific achievements in the study process.

The doctoral study programme "Biology" implemented at Daugavpils University plays a significant role in the development of the scientific potential of the common field of study, as well as in promoting the growth and regeneration of academic staff. A significant part of the scientific indicators of the DU research programme "Biology" (publications, scientific projects, etc.) are provided directly by the teaching staff involved in the implementation of the DSP "Biology". It is also possible for the students of ABSP "Biology" and AMSP "Biology" to participate in the ongoing scientific research within the framework of the development of doctoral theses developed by DU, thus gaining a unique experience of research work. Most of the academic staff involved in the implementation of DSP "Biology" are also included in the provision of ABSP "Biology" and AMSP "Biology" study courses, thus ensuring the continuity of knowledge and the optimal connection of study content in the various level study programs implemented by DU. For more detailed information on the influence of DSP "Biology" on research and other levels of education, see in dection 5.2.2 of the report.

2.4.2. The relation between scientific research and/or artistic creation and the study process, including the description and assessment of the use of the outcomes in the study process.

Within the framework of the study process, the latest current events in the field are constantly followed – the academic staff participates in projects, the results are used to update the content of the study courses. Lecturers actively participate in the approbation and dissemination of the research results by speaking at scientific and practical conferences and seminars. The information obtained in scientific events is used in the management of study courses and works, as well as in the preparation of teaching aids. The research and creative activity of the academic staff is closely related to the study process, promoting students' understanding of the relationship between the innovation sector and the needs of the real organization. The staff of the programme consists of lecturers who regularly cooperate in the improvement of study processes, thus achieving interdisciplinarity in the development of students' knowledge and skills. Compilation of quantitative data on scientific and applied research activities corresponding to the field of study during the reporting period - academic staff publications, participation in conferences, artistic creative activities, participation in projects, etc. see in the appendix 2.4.3.

It is very important that the staff involved in the field provide an innovative study environment and professional experience for the students in the study programmes of the field. It should be noted that currently a great deal of emphasis in knowledge transfer is placed on the interaction of study work with research and training of students based on scientific achievements. The interdisciplinary aspect of the given aspect and the inclusion of different study programmes and students of different levels (including study direction "Life Sciences") in solving current problems of science and thus society as a whole are significant.

Scientific communication plays an important role in the development of society. Scientists of the field are very active in this area, participating in the events of Daugavpils Science Festival, Scientists' Night, DU School of Science, providing training, lectures, interactive events for different age groups, as well as participating in consulting and evaluation of scientific research. DU is a member of the international associations active in the field of scientific communication (EUSEA).

2.4.3. Description and assessment of the international cooperation in the field of scientific research and/or artistic creation by specifying any joint projects, researches, etc. Specify those study programmes, which benefit from this cooperation. Specify the future plans for the development of international cooperation in the field of scientific research and/or artistic creation.

The scientific staff of the DU Institute of Life Sciences and Technologies, as well as the Latvian Institute of Hydroecology, a DU agency, are involved in the realization of the study programs included in the study direction “Life Sciences”, which ensures a high scientific capacity of the study direction. Students are provided with access to the scientific laboratories and scientific equipment of the mentioned scientific institutions. The quality of the research carried out in the two mentioned scientific institutions is confirmed by the results of the international assessment of Latvian scientific institutions for the period from 2013 to 2018, published in 2021. The international assessment was performed by Technopolis Group Eesti OÜ upon the order of Ministry of Education and Science. In compliance with the international assessment results,[1] the priority research direction at DU “Biology” implemented at DU Institute of Life Sciences and Technologies, as well as research programmes implemented at Latvian Institute of Hydroecology received the assessment “3”, that testifies to the fact that both scientific institutions in the branch of biology are “strong national scale actors with certain international recognition and the significance of the research performed by these institutions is not doubted in the expert opinion”.

In cooperation with other scientific institutions in Latvia and abroad, the lecturers of the study direction “Life Sciences” are involved in the implementation of many research projects (including Horizon 2020, LIFE, Twinning, COSME, etc.) and contractual works, participate in international scientific networks and consortia (CERN, CETAF, GBIF, etc.) and publish their research results in internationally indexed scientific publications. A more detailed summary of the research activities of the academic staff involved in the realization of the study direction can be found in the appendix (*2.4.3.Participation in projects, 2.5.1.Cooperation partners*). In the implementation of various international cooperation activities, students in the study programs implemented in the field of studies are also involved. For example, it is possible to participate in the research activities of the international scientific projects realized by DU, also for those studying in the bachelor's, master's and doctoral study programs realized within the field of study. Another example is the contribution to the field of study from DU's participation in international scientific networks, within the framework of which DU has access to various specialized databases (e.g. PlutoF Biodiversity Platform), to which free access is also provided to those studying in the field of study.

The competence of DU academic staff is developed by participating in mobility within the framework of the European Union support program in the field of education, training, youth and sports "ERASMUS +". Cooperation agreements have been concluded with more than 90 higher education institutions in 22 countries.

"ERASMUS +" program supports teaching - DU lecturers go to one of the foreign co-operation universities or participate in staff training, improving professional competencies, ensuring participation in training, observing work at a foreign co-operation university or other appropriate organization. The goals of learning mobility enable DU lecturers and staff to gain knowledge and specific skills by learning from the experience and good practice of foreign partners, as well as to improve the practical skills required for work at DU and professional development, to encourage academic staff to expand and improve the range and content of courses , enables students who do

not have the opportunity to participate in a mobility program to benefit from the knowledge and experience provided by academic staff and foreign guest lecturers from other European universities, and promotes the exchange of knowledge and teaching experience between European higher education institutions.

The following plans for the development of co-operation in scientific research should be noted: increasing the scientific capacity of the teaching staff of the study field by becoming more actively involved in the international movement (international projects, conferences, publications in SCOPUS/WoS); conclusion of cooperation agreements and implementation of joint projects with foreign educational and research institutions.

[1] International assessment of the activity of science institutions. Available: https://www.izm.gov.lv/lv/media/10705/download?attachment [viewed 20.02.2023]

2.4.4. Specify the way how the higher education institution/ college promotes the involvement of the teaching staff in scientific research and/or artistic creation. Provide the description and assessment of the activities carried out by the academic staff in the field of scientific research and/or artistic creation relevant to the study field by providing examples.

DU promotes the development and improvement of the academic staff by moving towards a competent staff. Most lecturers have experience in the field, which confirms their suitability for work in the program. The scientific capacity of the teaching staff is confirmed by the final work supervised by the publications indexed in the Web of Science and SCOPUS databases, incl. doctoral theses) and research in the implementation of which the lecturers of the study program participate. DU evaluates the scientific activity of the teaching staff every year, within the framework of which the results of research work, activity in projects, as well as pedagogical and organizational work are evaluated. Within the framework of the study process, the latest current events in the field are constantly followed - the academic staff participates in projects, the results are used to update the content of study courses. Lecturers actively participate in the approbation and dissemination of research results by speaking at scientific and practical conferences and seminars. The information obtained in scientific events is used in the management of study courses and works, as well as in the preparation of teaching aids. The research and creative activity of the academic staff is closely related to the study process, promoting students' understanding of the relationship between the innovation sector and the needs of the real organization. The staff of the program consists of lecturers who regularly cooperate in the improvement of study processes, thus achieving interdisciplinarity in the development of students' knowledge and skills.

It is important to note that each lecturer involved in the implementation of the study program is an active scientist, providing science-based studies. DU has a motivation system for academic staff, cascading science performance indicators to the level of a researcher, i.e. see setting the following criteria: Number of WoS / SCOPUS publications (at least 1 year); participation in research projects; participation in international scientific events (at least 1 participation per year); research mobility (at least 1 participation in 2 years), etc. In cases when the lecturer does not meet the set requirements, DU may make a decision to terminate the contract.

Information on the publications of the academic staff and participation in the conference is

available in the Appendix *2.4.4.Summary of quantitative data*.

2.4.5. Specify how the involvement of the students in scientific research and/ or applied research and/or artistic creation activities is promoted. Provide the assessment and description of the involvement of the students of all-level study programmes in the relevant study field in scientific research and/ or applied research and/or artistic creation activities by giving examples of the opportunities offered to and used by the students.

When developing their term papers, bachelor, Master, and doctoral theses, students in the DU study direction "Life Sciences" conduct research in the scientific laboratories of the DU Institute of Life Sciences and Technologies, the Faculty of Natural Sciences and Mathematics, as well as the Latvian Institute of Hydroecology, a DU agency, which are equipped with modern scientific equipment. Taking into account that students' term papers, bachelor, Master, and doctoral theses in the specific field of study are supervised by practicing scientists from the mentioned scientific institutions or their structural units, students are offered ample opportunities to choose topics of interest in various sub-branches of the science of biology. In situations where students show interest in research areas that are not implemented in the structural units profiling the study direction, individual solutions are sought by signing enterprise agreement with scientific advisers/consultants for term, bachelor, Master, or doctoral theses from other scientific institutions in Latvia or abroad. Students (especially in Master and doctoral level study programmes) are also actively involved in the research projects and contract works implemented by the DU Institute of Life Sciences and Technologies, the Faculty of Natural Sciences and Mathematics, as well as the Latvian Institute of Hydroecology, a DU agency. The list of research projects with student participation in the study direction "Life Sciences" within the reporting period is available in appendix 2*.4.5.Research projects involving students*.

In order to promote students' skills in the development of scientific projects and the preparation of publications, students in the bachelor and Master study programmes implemented at DU can apply for an annual student research project competition.

In cooperation with DU academic staff, students also have an opportunity to participate in the annual Daugavpils University research project competition and receive funding for the implementation of scientific research. In accordance with the evaluation criteria of DU research projects, it is a mandatory condition to involve at least one Master/doctoral study programme student or doctoral degree candidate in the implementation of DU research projects. The mentioned condition promotes students' involvement in research work.

In order to promote opportunities for students to develop their skills of presenting the results of their research to the scientific community, students involved in the DU study direction "Life Sciences" are offered an opportunity to present their research results at international scientific conferences organized by DU (annual International Scientific Conference of Daugavpils University[1], as well as International Conference on Biodiversity Research (ICBR)[2] organized once in two years. Students of the study direction have participated in the reporting period in many other international conferences, thus facilitating the international recognition of the study direction. The list of research conferences with participation of students of the study direction "Life Sciences" in the reporting period is provided in appendix *2.4.5_Student participation in conferences*.

[1] DU starptautiskās zinātniskās konferences mājaslapa. Available: https://www.dukonference.lv/lv [pārlūkots 20.02.2023]

[2] Bioloģiskās biodaudzveidības pētījumu starptautiskā konference. Available: https://biodiversityconference.biology.lv/ [pārlūkots 20.02.2023]

2.4.6. Provide a brief description and assessment of the forms of innovation (for instance, product, process, marketing, and organisational innovation) generally used in the higher education institution, especially in study field subject to the assessment, by giving the respective examples and assessing their impact on the study process.

In order to achieve the indicators defined in the model of excellence, DU provides in the implementation of the goal of the study process a wide knowledge base, support for research and innovation, support for the development of the personality of students, as well as ensuring students' future careers by promoting their employment. Various forms of innovation (product innovation, process innovation, marketing innovations, organizational innovations) are applied to the "Life Sciences" study direction and DU to achieve this goal.

Product innovation. The specificity of the study programmes realized within the direction of studies is related to the close integration of studies and scientific research work. To ensure the study process and conduct scientific research, students have access to specialized classrooms and scientific laboratories at DU Faculty of Natural Sciences and Mathematics, DU Institute of Life Sciences and Technologies, as well as the Latvian Institute of Hydroecology. Summary of the learning and research work infrastructure available to students of the study direction "Life Sciences" is provided in appendix *2.3.2.Infrastructure and un material and technical provision*.

For conducting students' scientific research within the study programmes and for scientific research in biology, DU lecturers, staff and students have access to modern and diverse scientific equipment and software. Teaching and scientific laboratories are used for both the study process and research work providing the introduction of innovations in the study process. Laboratories are modern, comfortable, compliant with work safety and ergonomic rules and they function to promote students' competitiveness and ability to use new technologies and sources of information. The study process in the scientific laboratories contributes to updating the content of the study programmes, increasing the quality of the development of research works, by introducing innovative technological, methodological and IT solutions.

Process innovation. Over the last two years, the organization of e-learning has been developed very rapidly using Zoom for conducting online classes; video recordings are recorded; The DU e-learning website (MOODLE) provides descriptions of study courses, necessary study materials, links to certain information for the study course, colloquia and exams. Lecturers have the opportunity to create a student assessment book and students (individually) can follow the progress of the study course. The administration of the DU e-study website is well organized, the administrator's consultations are available (in person, online or by correspondence), the DU e-study website provides instructions and tips on the use of e-studies

Marketing innovations. DU uses certain marketing tools (Open Door Days at DU, Night of Scientists, DU Science Festival, School of Green Biologists, camps, advising and organizing defense of school learners' scientific research works, information about DU on social networks, etc. in person and online format activities) to promote future students' interest in the study programmes

of the study direction “Life Sciences”. In 2022, the DU website was renewed and updated.

Organizational innovation. DU uses several digitized systems: DUIS (allows to digitize many processes and document processing: certificate, order, study contract, their amendment, preparation of diplomas, input of statistics, collection of statistical data), Namejs (document management system that provides correspondence, order, contract , reference, management of procurement documents, efficiency of the document circulation process), HoP (employee self - service portal, which provides the employee with the opportunity to view information about himself / herself, absences of his / her colleagues, apply for leave, check his / her accrued leave days, etc.)

2.5. Cooperation and Internationalisation

2.5.1. Provide the assessment as to how the cooperation with different institutions from Latvia (higher education institutions/ colleges, employers, employers’ organisations, municipalities, non-governmental organisations, scientific institutes, etc.) within the study field contributes to the achievement of the aims and learning outcomes of the study field. Specify the criteria by which the cooperation partners for the study field and the relevant study programmes are selected and how the cooperation is organised by describing the cooperation with employers. In addition, specify the mechanism for the attraction of the cooperation partners.

The content of the study programmes included in the study direction is created and changes are made, taking into account the opinions and requirements of employers. By involving the partners of employers and professional organizations, the expansion of the knowledge base and innovation resources in the field of natural sciences has been carried out over several years.

Cooperation with employers is constantly expanding, with improvement and expansion of the forms of cooperation as well. Several important trends in cooperation with employers can be mentioned: improving the quality of study programmes and study courses, taking into account employers’ recommendations about the content of study courses and forms of their implementation; involvement in common activities, for example, organizing scientific and practical conferences, science communication events, etc.; employment of students and graduates in companies or scientific institutions.

When implementing the study programmes, employers are involved both in formulating the knowledge and skills needed by the employees, in assessing the quality of educational programs, and in strategic planning. On the regional level, an important part of the dialogue is DU’s cooperation with Latgale region employers, regional and city municipalities, as well as state and local government bodies. Thus, the programs ensure partnership as one of the main basic principles of regional development policy.

Representatives of employers are involved in the work of the study direction council, participate in solving various important issues related to the implementation and development of the study programme. In order to ensure the compliance of the study programme with the requirements of the labor market, a survey of employers is regularly carried out. Questionnaires for graduates and employers have been developed ("Other appendices", *2.5.1. Employer survey example* and *2.5.1. Graduate survey example*). Employers’ evaluations and feedback about graduates are important, because these feedbacks and evaluations can contribute to the introduction of certain corrections

in the process of study programme implementation. The survey data are analyzed and discussed at the meetings of the structural units involved in the study programmes, at the meetings of the study direction council and the Faculty Council, thus ensuring feedback in cooperation with graduates and employers. In order to achieve the goals and study outcomes of the study direction, cooperation of lecturers with various professional associations and unions is also essential.

Within the framework of the implementation of the study programmes included in the “Life Sciences” study direction, a successful cooperation has been established and a regular dialogue is held with state and municipal institutions representing the industry, scientific institutes, other higher education institutions, entrepreneurs, various professional associations and unions (University of Latvia, Latvia University of Life Sciences and Technology, Rēzekne Academy of Technology, Riga Stradiņš University, Vidzeme University, Confederation of Latvian Employers, Nature Protection Board, Regional Environmental Board, Daugavpils Regional Hospital, State Border Inspection, Food and Veterinary Services, Latgale Zoo, Regional Education Boards and schools, Daugavpils City Council, Daugavpils Regional Council, Līvāni Regional Council, Rural Support Service, VAS “Latvijas valsts meži”, Forest Certification Council, State Scientific Institute “BIOR”, Latvian State Institute of Forestry Science “Silava”, Latvian Institute of Hydroecology, Institute of Agrarian Resource Economics, “Estonian, Latvian & Lithuanian Environment ltd, “Magistr” ltd, “EkoLat” ltd, “VetZooCentrs” ltd, “ROLS” ltd, etc.). The opinions of cooperation partners are taken into account when making changes to the offer and content of study courses, as well as when developing new AMSP “Biology”. As a successful platform for communication with existing and potential cooperation partners, the council of the DU study field "Life Sciences" can be mentioned, which, if necessary, provides consultations with cooperation partners on issues related to the implementation of study programs and improvement of the quality of study courses. When choosing potential cooperation partners on the scale of Latvia or the region, the most important criterion is the connection of the fields of activity of the specific companies or institutions with the field of biology and/or the potential job market of the graduates of the study programs realized within the field of study.

2.5.2. Provide the assessment as to how the cooperation with different institutions from abroad (higher education institutions/ colleges, employers, employers’ organisations, municipalities, non-governmental organisations, scientific institutes, etc.) within the study field contributes to the achievement of the aims and learning outcomes of the study field. Specify the criteria by which the cooperation partners suitable for the study field and the relevant study programmes are selected and how the cooperation is organised by describing the cooperation with employers. In addition, specify the mechanism for the attraction of the cooperation partners.

During the reporting period, DU has significantly developed its international recognition by integrating into several international scientific networks related to life sciences. Since 2021, DU has been accepted as an associate member in the international networks of CETAF (Consortium of European Taxonomic facilities)[1] and GBIF (Global Biodiversity Information Facility)[2]. The aforementioned networks open up wider opportunities for DU researchers and students to access scientific collections and databases in Europe and elsewhere in the world, as well as to develop DU's existing collections by attracting foreign specialists in the implementation of taxonomic audits. DU is a member of the NACEE (Network of Aquaculture Centers in Central-Eastern Europe)[3] network, which was created with the aim of promoting aquaculture research and industry

development in Central and Eastern Europe and becoming an integral part of the European research space. DU is one of the initiators and participants in the establishment of PhilColNet (Philippine Coleopterological Network), an international network for the study of the beetle fauna of the Philippine archipelago, which was created with the aim of promoting biodiversity research in the Philippine archipelago and ensuring the preservation and protection of the unique natural diversity.

Since 2022, DU has been admitted to the Baltic group of the European Organization for Nuclear Research (CERN)[4]. Although the study programs included in the field of study are not directly related to the research carried out by CERN, participation in CERN opens wide opportunities for the research staff and students of the field of life sciences to get involved in interdisciplinary research carried out by CERN.

The teaching staff of the "Life Sciences" study area of DU are also involved in the implementation of many international projects, which are implemented in cooperation with other scientific institutions in foreign countries, including DU is a project partner in the implementation of two Horizon 2020 program projects OPTAIN[5] and BETTER Life[6], as well as in the implementation of projects financed by other EC financial instruments (e.g. TWINNING, LIFE, etc. programs).

Student and faculty internships and development of research topics are possible in more than 90 higher education institutions (22 countries of the world) with which DU has concluded cooperation agreements. In order to promote the incoming mobility of foreign students and teaching staff, at the beginning of the year, the DU Erasmus+ coordinator sends an informative letter to all existing Erasmus+ partners about how foreign students and teaching staff can apply for studies, internships, teaching or professional development. The list of offered study courses is requested from the profiling structural units. The list of study courses is updated every year. The DU Erasmus+ coordinator also visits the international Staff Week several times a year, where there is an opportunity to establish new contacts and conclude inter-university agreements on the exchange of students and teaching staff within the Erasmus+ program.

When choosing potential cooperation partners in Latvia and abroad within the field of study, priority is given to universities that implement similar study programs in the field of life sciences or scientific institutions whose research directions coincide with the priority research directions defined in the DU strategy. For information on concluded cooperation agreements with foreign institutions, see in the appendix (*2.5.1.Sadarbības partneri*)

Successful individual cooperation of DU scientific staff with researchers from other scientific institutions has been very important in the recognition and promotion of the international cooperation of the study direction “Life Sciences”. Owing to long-term contacts and initiatives in the implementation of joint research, many research projects have been realized and research results have been published in internationally indexed scientific publications. Most of the scientific articles published by the academic staff of the “Life Sciences” study direction are co-authored with scholars from scientific institutions in foreign countries. The statistics available in the Scopus database reflects the most important cooperation partners of DU in the implementation of research in biology and related branches (appendix *2.5.1.Sadarbības partneri*).

[1] Consortium of European Taxonomic facilities. Available: https://cetaf.org/three-new-members-and-a-lot-of-positive-energy-from-cetaf51/ [viewed 20.02.2023]

[2] Global Biodiversity Information Facility. Available: https://www.gbif.org/; https://www.gbif.org/publisher/16f88706-56f2-4e1e-8f39-74782cc1ae27 [viewed 20.02.2023]

[3] Network of Aquaculture Centers in Central-Eastern Europe. Available: https://www.nacee.eu/en/about-nacee/ [viewed 20.02.2023]

[4] European Organization for Nuclear Research. Available: https://indico.cern.ch/category/10023/ [viewed 20.02.2023]

[5] Horizon 2020 programmas projekts OPTAIN. Available: https://www.optain.eu/ [viewed 20.02.2023]

[6] Project BETTER Life. Available: https://cordis.europa.eu/project/id/101071314 [viewed 20.02.2023]

2.5.3. Specify the system or mechanisms, which are used to attract the students and the teaching staff from abroad. Provide the assessment of the incoming and outgoing mobility of the teaching staff in the reporting period, the mobility dynamics, and the issues which the higher education institution/ college faces with regard to the mobility of the teaching staff.

ERASMUS and other mobility program funding is used as a basis for attracting foreign lecturers in the "Life Science" study direction along with the funding raised within the framework of various projects implemented by DU (for example, ESF project No. 8.2.2.0/18/A/022 "Strengthening the professional competence of academic staff in strategic specialization areas of Daugavpils University"). Within ESF project no. 8.2.2.0/18/A/022, 5 foreign lecturers were involved in the study direction (in 2019, visiting professors Ingrida Šauliene from Lithuania and Oleg Borodin from Belarus; in 2019-2020, Polina Degtjarenko from Estonia; in 2022, Markus Rantala from Finland and Milton Norman Medina from the Philippines) who conducted classes in the study direction programmes.

DU within "ERASMUS+" program has concluded cooperation agreements with more than 90 higher education institutions in 22 countries. The "ERASMUS+" program supports academic exchange: DU lecturers visit one of the foreign universities of cooperation or participate in staff training, improving their professional competences, ensuring participation in training, work observation at a foreign university of cooperation or another relevant organization. The goals of academic mobility provide DU academic and general staff with the opportunity to gain knowledge and specific skills by learning from the experience and good practices of foreign partners, as well as improve the practical skills necessary for work at DU and professional development, encourage the academic staff to expand and improve the range and content of the offered study courses, allow students who do not have the opportunity to participate in the mobility program to benefit from the knowledge and experience provided by the academic staff of universities in other European countries and foreign visiting lecturers, promote the exchange of knowledge and experience of teaching methods among European higher education institutions.

Incoming and outgoing academic mobility data for the reporting period are provided in appendix (*2.5.3.Incoming and outgoing mobility academic staff*).

Both DU students and foreign students actively use the opportunities offered within the Erasmus+ program for studies and internships[1]. Incoming and outgoing student mobility data for the reporting period are provided in appendix (*2.5.3.Incoming and outgoing mobility DU students*).

Both students and teaching staff are actively involved in the Erasmus+ (KA107) program, which offers new international mobility opportunities for students and staff from/to countries that do not belong to the Erasmus+ program. Daugavpils University offers exchange mobility to partner universities in the USA, Philippines, India, Israel, Jamaica, China, Lesotho, Tajikistan.

In order to attract foreign students, DU provides information about the study programmes implemented by DU, which is available in English on the DU website[2], as well as other Internet sites[3]. DU also implements marketing activities: contracts are concluded with recruitment agents, as well as: e-marketing, participation in international education fairs and agent forums, etc.

[1] Opportunities offered within the Erasmus+ program. Available: https://du.lv/en/news/apply-for-erasmus-studies-and-traineeship-scholarship/ [pārlūkots 20.02.2023]

[2] Informācija par DU realizētajās studiju programmām. Available: https://du.lv/en/studies/study-programmes/ [pārlūkots 20.02.2023]

[3] Information about the study programs implemented by DU. Available: https://www.studyinlatvia.lv/universities/daugavpils-university, https://www.study.eu/university/daugavpils-university [pārlūkots 20.02.2023]

2.6. Implementation of the Recommendations Received During the Previous Assessment Procedures

2.6.1. Assessment of the fulfilment of the plan regarding the implementation of the recommendations provided by the experts during the previous accreditation of the study field, as well as the assessment of the impact of the given recommendations on the study quality or the improvement of the study process within the study field and the relevant study programmes.

Recommendations given by experts in the previous accreditation of the study direction “Life Sciences” (ABSP “Biology”, AMSP “Biology”, and DSP “Biology”) (16.12.2011.) (see *2.6.1.Expert opinion_Life Sciences_2011*) were thoroughly analyzed and a plan was drawn for making respective corrections that was carried out in the following years. Overview of implementing the recommendations provided by experts is available in appendix (*2.6.1.Overview of the implementation of the recommendations*). All recommendations were fulfilled, activities were carried out, their implementation and achievable results are reflected in Appendix 2.6.1.

2.6.2. Implementation of the recommendations given by the experts during the evaluation of the changes to the study programmes in the respective study field or licensed study programmes over the reporting period or recommendations received during the procedure for the inclusion of the study programme on the accreditation form of the study field (if applicable).

According to the approved “DU study programme development and consolidation plan” (the plan was agreed by the Ministry of Education and Culture Study Programme Development and Consolidation Plan Evaluation Commission on 30.11.2018; changes confirmed on 24.11.2020 and 08.09.2021), DU has consolidated two Master’s study programmes of the study direction “Life Sciences” (AMSP “Biology” and AMSP “Nature recreation”), creating a new academic Master’s study programme “Biology” instead.

The purpose of the newly created study programme is to prepare high-level specialists in the field of biology with deep theoretical knowledge and practical skills, who are able to make independent decisions and conduct creative scientific research. Students of AMSP “Biology” can specialize and acquire in-depth knowledge, skills and abilities in one of the three offered sub-programmes – “Biodiversity and its protection”, “Aquaculture”, “Nature recreation”, gaining ample opportunities to adapt to the demands and needs of the labor market.

Decision of issuing licence to DU study direction “Life Sciences” academic Master’s study programme “Biology” was taken on 19 May 2021 at the meeting of the Academic Information Centre Study Quality Commission. Overview of the execution of recommendations suggested by Licencing Commission experts is enclosed in appendix (2*.6.2.Overview of the implementation of AMSP Biology licensing recommendations*). All recommendations were fulfilled, activities were carried out, their implementation and achievable results are reflected in Appendix 2.6.1.

Annexes

I - Information on the Higher Education Institution/ College		
Information on the implementation of the study field in the branches of the higher education institution/ college (if applicable)		
List of the governing regulatory enactments and regulations of the higher education institution/ college	1.2_List of the main internal laws and regulations.pdf	1.2_Ieksejo normativo aktu un regulejumu saraksts.pdf
The management structure of the higher education institution/ college	1.2_Governance structure.png	1.2_Parvaldibas struktura.pdf
II - Description of the Study Field - 2.1. Management of the Study Field		
Plan for the development of the study field (if applicable)	2.1.2_Study field develompent plan summary_EN.docx	2.1.2.Studiju virziena attistibas plana kopsavilkums_LV.docx
The management structure of the study field	2.1.3_Management structure of study diection_EN.pdf	2.1.3_Studiju virziena parvaldības struktūra_LV.pdf
A document certifying that the higher education institution or college will provide students with opportunities to continue their education in another study programme or another higher education institution/ college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.	2.1.4.Agreement between LU and DU_translation_EN.docx	2.1.4.Vienošanās starp LU un DU_LV.edoc
A document certifying that the higher education institution or college guarantees compensation for losses to students if the study programme is not accredited or the study programme license is revoked due to actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.	2.1.4.Statement_Compensation guarantee for students_EN.docx	2.1.4.Apliecinājums_zaudējumu kompensācija studējošajam_LV.edoc
Standard sample of study agreement	2.1.4.Agreement on studies_DU_EN.docx	2.1.4.Līgums par studijām_DU_LV.docx
II - Description of the Study Field - 2.2. Efficiency of the Internal Quality Assurance System		
Analysis of the results of surveys of students, graduates and employers	2.2.4. Analysis and evaluation of the results of all surveys_EN.docx	2.2.4.Analīze un novērtējums par visu aptauju rezultātiem_LV.docx
II - Description of the Study Field - 2.3. Resources and Provision of the Study Field		
Basic information on the teaching staff involved in the implementation of the study field	2.3.7.Basic information about teaching staff_EN.xlsx	2.3.7.Pamatinformācija par mācībspēkiem_LV.xlsx
Biographies of the teaching staff members (Curriculum Vitae in Europass format)	2.3.7.CV of academic staff_EN.zip	2.3.7.Mācībspēku CV_LV.zip
A statement signed by the rector, director, head of the study programme or field that the knowledge of the state language of the teaching staff involved in the implementation of the study programmes within the study field complies with the regulations on the state language knowledge and state language proficiency test for professional and official duties.	2.3.7.Statement_native language_EN.docx	2.3.7.Apliecinājums_par valsts valodas prasmi_LV.edoc
A statement of the higher education institution/ college on the respective foreign language skills of the teaching staff involved in the implementation of the study programme at least at B2 level according to the European Language Proficiency Assessment levels (level distribution is available on the website www.europass.lv, if the study programme or part thereof is implemented)	2.3.7.Statement_foreign_language_EN.docx	2.3.7.Apliecinājums_par svešvalodas prasmi_LV.edoc
II - Description of the Study Field - 2.4. Scientific Research and Artistic Creation		
Summary of quantitative data on scientific and/ or applied research and / or artistic creation activities corresponding to the study field in the reporting period.	2.4.4.Summary of quantitative data_ENG.docx	2.4.4.Kvantitatīvo datu apkopojums_LV.docx
List of the publications, patents, and artistic creations of the teaching staff over the reporting period.	2.4.4.List of scientific publications_EN.docx	2.4.4.Zinātnisko publikāciju saraksts_LV.docx
II - Description of the Study Field - 2.5. Cooperation and Internationalisation		
List of cooperation agreements, including the agreements for providing internship	2.5.1.Cooperation partners_EN.docx	2.5.1. Sadarbības partneri_LV.docx
Statistical data on the teaching staff and the students from abroad	2.5.3.Statistics on foreign students and lecturers_EN.docx	2.5.3.Statistikas dati par ārvalstu studējošajiem un mācībspēkiem_LV.docx
Statistical data on the incoming and outgoing mobility of students (by specifying the study programmes)	2.5.3.Incoming and outgoing mobility DU students_EN.docx	2.5.3_DU studējošo ienākošā_izejošā_mobilitāte_LV.docx
Statistical data on the incoming and outgoing mobility of the teaching staff	2.5.3.Incoming and outgoing mobility academic staff_EN.docx	2.5.3_Macībspēku ienākošā un izejoša mobilitāte_LV.docx
II - Description of the Study Field - 2.6. Implementation of the Recommendations Received During the Previous Assessment Procedures		
Report on the implementation of the recommendations received both in the previous accreditation and in the licensing and/ or change assessment procedures and/ or the procedures for the inclusion of the study programme on the accreditation form of the study field.	2.6.1.Review of implementation of recommendations_EN.zip	2.6.1.Rekomendāciju izpildes pārskats_LV.zip
An application for the evaluation of the study field signed with a secure electronic signature	APPLICATION for the evaluation_NEW.docx	Iesniegums studiju virziena novērtēšanai_JAUNS.edoc
III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme		
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period		
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard		
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		

Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme		
The curriculum of the study programme (for each type and form of the implementation of the study programme)		
Descriptions of the study courses/ modules		
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Other annexes

Name of document	Document
Studiju iekšējās kvalitātes nodrošināšanas politika	1.3_DU-STUDIJU-IEKŠĒJĀS-KVALITĀTES-NODROŠINĀŠANAS-POLITIKA.pdf
Internal Quality Assurance Policy of Studies	1.3.INTERNAL QUALITY ASSURANCE POLICY OF STUDIES AT DAUGAVPILS UNIVERSITY.pdf
Studiju iekšējās kvalitātes sistēmas efektivitātes nodrošināšanas kārtība	1.3_DU-STUDIJU-IEKŠĒJĀS-KVALITĀTES-SISTĒMAS-EFEKTIVITĀTES-NODROŠINĀŠANAS-KĀRTĪBA.pdf
Studiju kvalitātes politikas un studiju kvalitātes pārraudzības stratēģija	1.3_DU-STUDIJU-KVALITĀTES-POLITIKAS-UN-STUDIJU-KVALITĀTES-PĀRRAUDZĪBAS-STRATĒĢIJA.pdf
DU normatīvie akti iekšējās kvalitātes nodrošināšanai	1.3_Normativie akti ieksejas kvalitates nodrosinasanai.pdf
Daugavpils University normative acts for internal quality assurance	1.3_List of Regulations for internal quality assurance.pdf
Infrastruktūra un materiāltehniskais nodrošinājums	2.3.2.Infrastruktura un materialtehniskais nodrosinajums_LV.docx
Infrastructure and un material and technical provision	2.3.2.Infrastructure and un material and technical provision_EN.docx
Dalība projektos	2.4.3.Dalība projektos_LV.docx
Participation in projects	2.4.3.Participation in projects_EN.docx
Studējošo dalība konferencēs	2.4.5_Studejoso dalība konferencēs_LV.docx
Student participation in conferences	2.4.5_Student participation in conferences_EN.docx
Pētniecības projekti kuros iesaistīti studenti	2.4.5.Pētniecības projekti kuros iesaistīti studenti_LV.docx
Research projects involving students	2.4.5.Research projects involving students_EN.docx
Expert opinion on Life Sciences	2.6.1.Expert opinion_Life Sciences_2011.pdf
2.5.1.Darba devēju aptaujas paraugs	2.5.1.Darba devēju aptaujas paraugs_LV.docx
2.5.1.Absolventu aptaujas paraugs	2.5.1.Absolventu aptaujas paraugs_LV.docx
2.5.1.Employer survey example	2.5.1.Employer survey example_ENG.docx
2.5.1.Graduate survey example	2.5.1.Graduate survey example_ENG.docx
Answers_biology.docx	Answers_biology.docx
Appendix 1-2.xlsx	Appendix 1-2.xlsx
Procedure_EN.docx	Procedure_EN.docx

Biology (43421)

Study field	*Wildlife Sciences*
ProcedureStudyProgram.Name	*Biology*
Education classification code	*43421*
Type of the study programme	*Academic bachelor study programme*
Name of the study programme director	*Inese*
Surname of the study programme director	*Kokina*
E-mail of the study programme director	*inese.kokina@du.lv*
Title of the study programme director	*Dr.biol., profesore*
Phone of the study programme director	
Goal of the study programme	*To provide students matriculated in DU with the acquisition of high-quality theoretical knowledge and research skills in the field of biology, theoretical and practical preparation that meets the needs of the state, which provide for successful engagement in solving economic problems, to compete in the Latvian and foreign labour markets, as well as to further their professional and academic education.*
Tasks of the study programme	*1. to provide students with a scientific basis for their professional activity, developing the abilities of scientific analysis and the ability to independently solve problems, as well as prepare students for further scientific research studies;* *2. provide students with high-quality theoretical and practical knowledge in biology that meets modern requirements;* *3. promote the development of the student as a free, responsible and creative personality;* *4. to develop the study process in order to increase the student's intelligence, promote mental development, promote the use of intellectual abilities;* *5. promote students' analytical abilities, develop skills in setting researched and practical problems and solving related theoretical and practical tasks;* *6. to deepen the student's understanding of the role of biology in modern science, economy and public life;* *7. develop skills and abilities in modern information acquisition and processing technologies;* *8. promote the student's competitiveness in further academic and professional studies.*

Results of the study programme	*Knowledge:* *1. Demonstrate a thorough theoretical and practical knowledge of biology;* *2. Understands key biological concepts about the functioning and development of biological systems;* *3. Know the basic principles of scientific research in biology.* *Skills:* *4. Can independently select, critically evaluate and analyse the obtained information;* *5. Can independently conduct scientific research in the fields of biological science;* *6. Can present and publicly defend the results of his research.* *Competences:* *7. Able to take initiative and responsibility, working individually or as part of a team;* *8. Be able to integrate knowledge of related fields of biology in self-development and self-improvement with a view to a future professional career;* *9. Be able to reinforce universal human attitudes and at the same time clarify attitudes related to the biological sciences, creating awareness and understanding of the protection and conservation of nature.*
Final examination upon the completion of the study programme	*Bachelor thesis*

Study programme forms

Full time studies - 3 years - latvian

Study type and form	*Full time studies*
Duration in full years	*3*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*122*
Admission requirements (in English)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Bachelor of Natural Sciences in Biology*
Qualification to be obtained (in english)	*-*

Places of implementation

Place name	City	Address
University of Daugavpils	DAUGAVPILS	VIENĪBAS IELA 13, DAUGAVPILS, LV-5401

Full time studies - 3 years - english

Study type and form	*Full time studies*
Duration in full years	*3*
Duration in month	*0*
Language	*english*
Amount (CP)	*122*

Admission requirements (in English)	*Secondary education; English language skills at least B2 level*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Bachelor of Natural Sciences in Biology*
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Daugavpils	DAUGAVPILS	VIENĪBAS IELA 13, DAUGAVPILS, LV-5401

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Changes in study programme parameters made since the previous study direction accreditation

Since the previous accreditation of the study direction, certain changes have been made in the structure of the study programme. In 2013/2014 academic year, the study courses “Meadow typology” (2 CP) and “Ornithology” (1 CP) were moved from part C to part B, while in part C students were offered to choose study courses from other study programmes implemented by DU.

In order to ensure compliance with the requirements of the Law on Environmental Protection and Civil Protection and Disaster Management, in academic year 2015/2016, in order to improve students’ competence in civil and environmental protection issues, two new study courses were integrated in part A of all undergraduate study programmes implemented by DU: “Civil defense” (1 CP) and “Environmental protection” (1 CP). In order to introduce these study courses in ABSP “Biology”, the study course "Introduction to studies" (2 CP) was exempted from the curriculum.

During the reporting period, the approach to teaching English was changed several times. In academic year 2012/2013, the study course “English in biology” (4 CP) was shifted from part C to part B and renamed “Professional English” (4 CP), providing this study course in a stream with ABSP “Environmental science”. In 2015/2016, due to the introduction of a new centralized study course “Practical English (improvement of the functional use of the language)” at DU, respective changes were made to the range of ABSP “Biology” study courses, including the centralized study course and removing the study course “Professional English” from the curriculum. In 2021/2022, taking into account the opinion of the study direction “Life Sciences”, the study course “Professional English” was returned to the curriculum, as well as specialists (A. Mežaka, T. Krama) with education in the field of biology were recruited to teach the study course.

In 2016/2017, the admission of students in the subspecialty “Aquacultural Biology” of the ABSP “Biology” was initiated. The purpose of the created sub-specialization was to ensure that DU matriculated students acquire high-quality theoretical knowledge and research skills and abilities in the field of biology, gaining orientation in the specialization in the direction of aquaculture biology. However, taking into account the low demand from applicants, it was decided to return to the classic content of the ABSP “Biology” programme, offering those interested in the specialization opportunities in the field of aquaculture at the level of Master's study programme.

Taking into account the spread of the Covid-19 pandemic and the transition to the remote study format, during the reporting period there was also an adaptation of the existing study implementation forms to the new situation (lectures on the Zoom platform, video lectures, etc.).

Changes within the procedure of the study direction assessment

It is planned to accredit ABSP "Biology" for the implementation also in English. Realization of the study programme in English will allow to increase the number of foreign students in the program.

Taking into account that currently there is a lot of interest in AMSP "Biology" from foreign students from the Philippines, Indonesia, Lesotho, etc. countries, it was also decided to implement the bachelor's study programme in English in order to ensure the opportunity for foreign students to also learn the bachelor's level study programme.

From 2023/2024, several changes have been proposed in the implementation of the study programme. The total volume of the study programme is planned to be reduced from 125 CP to 122 CP, therefore it is proposed to remove the study course “General Physics” (2 CP) from the list of the study courses, as well as to reduce the volume of the study course “Professional English” from 4 CP to 2 CP and the amount of study course “Biochemistry” from 3 CP to 2 CP. The reduction in the volume of the study course “Professional English” will not affect the quality of students’ knowledge of the English language, as the level of English proficiency of students in general is considered to be high. The content of the specific study course has been improved, focusing directly on the use of English terminology specialized for the field of biology. Also, the reduction of the volume of the study course “Biochemistry” will not affect the quality of the study course, developments of biochemical processes are also examined in other study courses within the study programme.

In order to promote the elaboration of higher quality and science-based term papers and bachelor theses, from 2023/2024, it is proposed to increase the amount of credit points intended for the development of term papers by 2 CP, correspondingly reducing the amount of credit points to be acquired in free choice part C from 6 CP to 4 CP. When reviewing the content of the offered study courses, changes were also suggested in the scope and content of several other study courses (see Table 3.1.1.1). Changes in the scope of study courses are also partly related to changes in the Act on HEI, which are related to the requirement to express the credit points of the European credit transfer and accumulation system in whole numbers.

Table 3.1.1.1. ***Summary of changes suggested in the list and volume of study course in ABSP “Biology”***

Existing study course name and volume in 2022/2023	Changes suggested (from 2023/2024)	Explanation of the changes suggested
Fizi1010, General physics (2 CP)	-	The study course is exempted due to reduction of overall CP amount in the study programme from 125 CP to 122 CP.
Valo3131, Professional English II (2 CP)	-	The study course is exempted due to reduction of overall CP amount in the study programme from 125 CP to 122 CP.
Biol1016, Biometrics (2 CP)	-	The study course is exempted due to overlapping of the study course content with that of Mate1090 “Mathematic methods in natural sciences”

-	Cartography (2 CP)	Taking into account the broad application of GIS technologies in field research provision nowadays, the study direction council suggested elaborating a new study course “Digital cartography and GIS in nature protection/preservation” 2 CP.
Ķīmi1002, General and inorganic chemistry (3 CP)	Ķīmi1002, General and inorganic chemistry (2 CP)	Study course volume is reduced for 1 CP.
Biol1007 General ecology (3 CP)	Biol1007 General ecology (4 CP)	Study course volume is enlarged for 1 CP.
Biol3001, Fundamentals of biochemistry (3 CP)	Biol3001, Fundamentals of biochemistry (2 CP)	Study course volume is reduced for 1 CP.
Biol2011, Histology (3 CP)	Biol2011, Histologt (2 CP)	Study course volume is reduced for 1 CP.
Biol2010, Human anatomy (3 CP)	Biol2010, Human anatomy (4 CP)	Study course volume is enlarged for 1 CP.
Biol2009, Cell biology (3 CP)	Biol2009 Cell biology (2 CP)	Study course volume is reduced for 1 CP.
Biol1015, Molecular biology (3 CP)	Biol1015, Molecular biology (4 CP)	Study course volume is enlarged for 1 CP.
Biol2031, Term paper I (1 CP)	Biol2031 Term paper I (2 CP)	Study course volume is enlarged for 1 CP.
Biol3032, Term paper II (1 CP)	Biol3032, Term paper II (2 CP)	Study course volume is enlarged for 1 CP.

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

ABSP "Biology" is a bachelor degree programme in the study direction “Life Sciences”, which was created in accordance with the requirements of the Act on HEI of Latvia and provides opportunities

for the acquisition of academic education in biology in compliance with the regulations on state academic education standard "Regulations on the national standard of academic education (13.05.2014. regulations No. 240 – *available in Latvian*). ABSP "Biology" provides students with the acquisition of theoretical knowledge in sciences and research skills in the field of biology, achieving the study outcomes determined in the study programme, which correspond to the level 6 knowledge, skills and competence of the European qualification framework determined in the Latvian education classification. In the course of studying the bachelor study programme, students acquire general knowledge base in the field of biology, expand their skills by learning general methods of conducting laboratory and field work, and acquire the competences necessary for professional activity in the field of biology.

Programme code 43421 reflects the status and content of the programme, in accordance with the requirements set out in the "Regulations on Latvian Education Classification" (MK 13.06.2017. Regulations No. 322). The first digits of the code 43 denote academic education (bachelor degree), which can be implemented after general or vocational secondary education. The second part of the code corresponds to the thematic field of education (42 – Life Sciences) and the group of educational programmes (421 – Biology).

The aim of the study programme is to provide students matriculated in DU with the acquisition of high-quality theoretical knowledge and research skills in the field of biology, theoretical and practical preparation that meets the needs of the state, which provide for successful engagement in solving economic problems, to compete in the Latvian and foreign labour markets, as well as to further their professional and academic education.

Enrollment in the study programme takes place in accordance with the "Daugavpils University admission rules for full-time and part-time undergraduate studies"[1], which are approved annually by the DU Senate. Admission requirements for full-time studies: centralized exams in Latvian language and literature and first foreign language. Additional points will be awarded for: CE in Biology, CE in Chemistry, as well as DU Science School Certificate winners.

Admission requirements for those studying in English: a document certifying secondary education and a document certifying knowledge of the English language at least at the B2 level.

The name of ABSP "Biology", the degree to be obtained, goals and objectives, student admission requirements are interconnected.

On the study programme acquisition diploma and its appendix sample in accordance with the Cabinet of Ministers regulations of 16.04.2013. No. 202 as well as agreement on studies sample in accordance with the Cabinet of Ministers regulations of 23.01.2007. No. 70 see (*3.1.2.ABSP Biology_Translation of Diploma, 3.1.2.ABSP_Biologija_Diploma supplement* and *3.1.2.ABSP Biology_Agreement on studies*).

[1] Daugavpils University admission rules for full-time and part-time undergraduate studies. Available: https://du.lv/gribu-studet/uznemsana/ [viewed 28.02.2023]

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

Biology is one of the most relevant branches of modern science, whose rapid development in recent

decades has made a visible and invaluable contribution both to the development of other branches of science (e.g. agriculture, forestry, medicine, etc.) and to the creation of various innovative products that provide significant benefits to various groups of society. The study direction “Life sciences” (including ABSP “Biology”) prepares specialists of all academic levels in the field of biology, who, depending on the specialization, are in demand in all priority areas of the national economy.

According to the 2020 data of the monitoring of graduates of higher education institutions carried out by the Ministry of Education and Science (monitoring is carried out in accordance with the regulations of the CM of 25.06.2019 No. 276 “Regulations of the State Education Information System”), the percentage difference in the income of graduates of higher education institutions compared to the national average income for persons with higher education in the last two years of taxation shows a tendency that already in the second year after graduating from higher education institutions, the national average income level of persons with higher education is reached. This confirms the importance of higher education in the income level of the population. According to monitoring data, the demand for graduates from natural sciences programmes in Latvia is high – approximately 88% of graduates of study programmes in the field of natural sciences are able to accomodate on the labor market.

Graduate monitoring shows that natural science graduates also have some of the highest average incomes. More than 90% of graduates from natural sciences programmes are employed in highly qualified professions. Also when evaluating the future perspectives, in the field of natural sciences there will be a significant shortage of specialists in the years to come.

Similar trends are also shown by the results of the employers’ survey conducted by DU. The readiness of ABSP “Biology” graduates for the labor market in Latvia and worldwide can be assessed as good, they have a sense of purpose at work, a sense of responsibility, discipline, initiative at work, a desire to learn, improve professionally, the ability to work with people, communication skills, and a broad outlook. Therefore, the high competitiveness of the graduates from the programme is also supported by their personal qualities – the graduate’s talent, work abilities, and motivation. It is also positive that most employers believe that the graduates use the acquired knowledge in their professional work, and that career growth is possible for them.

Evaluating the compliance of the work to the acquired education, 33% of the surveyed ABSP “Biology” graduates work in a job that corresponds to the acquired education, 11% work in the sphere related to the acquired education, 33% are employed in the sphere not related to the acquired education, while 22% are currently not employed. 55% of the surveyed students after graduating from ABSP “Biology” continue their studies in Master’s level study programmes in Latvia and abroad (e.g. Daugavpils University, Uppsala University).

In response to the question whether the obtained education played a significant role in finding a job or starting a business, 33% of graduates strongly agreed with this statement, 22% somewhat agreed, 22% somewhat disagreed, while 22% did not know or could not answer this question.

Appendix (*2.2.4. Analysis and evaluation of the results of all surveys*) provides a summary of the analysis and assessment of the study direction student, graduate, and employer survey outcomes, their use in the improvement of the content and quality of studies, providing examples on each programme included in the study direction and ABSP “Biology”.

Taking into account that DU is the only regional university that offers studies in the field of life sciences to those interested, it is also of fundamental importance from the point of view of the development of the region. For students who, due to financial reasons, have limited opportunities to afford studies in Riga, it is possible to get quality education closer to their place of residence. A

significant part of DU graduates remain to live and work in the Latgale region, thus contributing to the economic development of the region.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

At the time of submission of the accreditation report, ABSP “Biology” has a total of 25 students (10 students in the 1st year of studies, 9 students in the 2nd year, and 6 students in the 3rd year of studies), while in the period from 2017 to 2022, the total number of students enrolled in the ABSP “Biology” reached 77 students. In the reporting period, a total of 32 students graduated from the study programme.

Basically, all students of ABSP “Biology” study for state budget funds (except for one foreign student in 2021, who studied for personal funds (*2.5.3.Statistics on foreign students and lecturers*). The statistics of the number of students does not include foreign students who have studied at ABSP “Biology” as part of various mobility programs and have been matriculated for a specific study period. During the reporting period, three students studied at ABSP “Biology” within the Erasmus program – one student from Ukraine, one student from Spain, and one from Poland. Statistics of the number of students enrolled within the mobility programs for the reporting period are summarized in the appendix (*2.5.3.Incoming and outgoing mobility DU students)*.

Evaluating the long-term dynamics of the number of students at the ABSP "Biology", a slight decrease in the number of students can be observed, which generally coincides with the trends of changes in the number of students in the country as a whole, taking into account the demographic situation and trends in the field of natural sciences in Latvia. The decrease in the number of students matriculated in the 1st year during the last two years could be explained by the Covid-19 pandemic, which caused the deterioration of the financial situation in households. Some of the students enrolled in the study programme stop their studies for various reasons. The main reasons for stopping studies are failure, moving abroad, financial difficulties, as well as, of course, an ill-considered, inappropriate choice of study programme. In the longer term, the number of students tends to decrease, which is basically related to a negative demographic trend in the country.

ABSP “Biology” is implemented only in the form of full-time studies. In the previous accreditation period, the study programme was implemented in Latvian for those studying for state budget funds, while for foreign students studying for a fee, study courses were provided in English according to an individual schedule. In the framework of mobility programs, the selected study courses for matriculated students are provided in English.

During the Covid-19 pandemic, new forms of digital study were practiced (e.g. consultations on the Zoom platform), which have been widely used even after the end of the pandemic. The study programme is basically implemented face-to-face, but each academic staff member, in coordination with the programme director and the students, has the right to implement part of the scheduled classes remotely. This type of studies is especially suitable for providing individual consultations. In the modern study process, the need to use hybrid forms is increasing, offering students to connect to face-to-face classes through video conferencing devices.

Statistical data on those studying in the field of study “Life Sciences” during the reporting period

are summarized in the appendix of the report (*3.1.4.ABSP Biology_Statistical data students*).

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The content of ABSP "Biology" is determined by the aim and objectives of the study programme, which are coordinated with the new trends in the education system in the European Union, with the requirements of related regulations of the Cabinet of Ministers, the DU Constitution, and with the priority research directions of Daugavpils University. In the course of studying the bachelor study programme, students acquire a general knowledge base in the field of biology, expand their skills by learning general methods of conducting laboratory and field work, and acquire the competences necessary for professional activity in the field of biology.

Parameters characterizing the Study Programme

The purpose of the study program: to ensure that students matriculated at DU acquire high-quality theoretical knowledge and research abilities and skills in the field of biology, theoretical and practical training that meets the needs of the state, which gives the opportunity to successfully engage in solving economic problems, compete on the Latvian and foreign labour markets, as well as further professional and academic education.

Outcomes of the study programme to achieve: in the course of the bachelor study programme acquisition, students develop a general knowledge base in the branch of biology, expand their skills by learning general methods of conducting laboratory and field work, acquire the competences necessary for professional activity in the field of biology.

Knowledge: the study programme envisages the acquisition of theoretical and practical knowledge in biology and its sub-branches, which form the set of knowledge required for a bachelor's degree in biology. As a result of successful completion of the study programme and mastering the content of the study courses, students will demonstrate an understanding of the general regularities of the functioning and development of biological systems at all levels of the life organization, as well as

the current global and local problems in the field of biology and their possible solutions.

1. Demonstrate a thorough theoretical and practical knowledge of biology;
2. Understands key biological concepts about the functioning and development of biological systems;
3. Know the basic principles of scientific research in biology.

Skills: in the course of the study programme acquisition, students develop academic and professional competences, which are reflected in their skills. By participating in the practical and laboratory works and field practices provided for in the study programme, as well as conducting research under the guidance of the academic staff, summarizing the results in bachelor's theses, students learn various research methods, skills to plan and conduct laboratory, experimental and instrumental research, as well as observations in nature. Within the framework of the programme, the ability to critically evaluate the obtained results, perform statistical analysis of data and their interpretation, the ability to present and publicly defend the results of one's research, etc. is essential. The acquired skills ensure students' compliance with the requirements of the labor market in the specific sector and the future ability to continue their studies by improving the acquired skills and obtaining a specialization.

4. Can independently select, critically evaluate and analyse the obtained information;
5. Can independently conduct scientific research in the fields of biological science;
6. Can present and publicly defend the results of his research.

Competences: successful academic and research activity of students in fulfilling the requirements of the bachelor study programme is not possible without cooperation with the academic staff and fellow students involved in the implementation of the programme, as well as without delving into the issues of sustainable rational use of biological resources. In this way, general human attitudes are strengthened and at the same time attitudes related to biological science are clarified, creating awareness and understanding of nature protection and conservation.

7. Able to take initiative and responsibility, working individually or as part of a team;
8. Able to integrate knowledge of related fields of biology in self-development and self-improvement with a view to a future professional career;
9. Able to reinforce universal human attitudes and at the same time clarify attitudes related to the biological sciences, creating awareness and understanding of the protection and conservation of nature.

Study programme amount (CP): 122 CP

Study programme duration: 3 years

Programme parts and their amount:

- Compulsory part (80 CP) – General ecology (4 CP); General and inorganic chemistry (2 CP); Botany I (4 CP); Zoology I (4 CP); Applied ecology (2 CP); Analytical chemistry (2 CP); Organic chemistry (2 CP); Botany II (2 CP); Zoology II (2 CP); Integrated field course in biology (4 CP); Biophysics (2 CP); Fundamentals of biochemistry (2 CP); Molecular biology (4 CP); Mycology (2 CP); Protistology (2 CP); Cell biology (2 CP); Human anatomy (4 CP); Histology (2 CP); Microbiology (2 CP); Integrated field course "Species and biotopes" (2 CP); Fundamentals of evolution (4 CP); Plant physiology (4 CP); Human and animal physiology (4 CP); Genetics (4 CP); Nature protection biology (2 CP); Fundamentals of biotechnology (2 CP); Virusology (2 CP); Term paper (4 CP), Environment protection (1 CP); Civil protection (1 CP).
- Limited choice part (28 CP) – Mathematical methods in natural sciences (2 CP); Fundamentals of biosystematics (2 CP); Entomology (4 CP); Forest typology (2 CP); Individual development

of orgenisms (2 CP); Dendrology (2 CP); Biogeography (2 CP); Etology (2 CP); Parasitology (2 CP); Ornitology (2 CP); Fundamentals of grassland typology (2 CP); Professional English (2 CP); Cartography (2 CP).
- Free choice part – (4 CP).
- Bachelor theses (10 CP).

Amount of contact hours (%): 1 credit point corresponds to 40 academic hours, 16 hours whereof are contact hours, which is 40% of the expected amount.

Compliance with the requirements of the Act on Environmental Protection and Civil Defense and Disaster Management: the study programme includes the study courses "Civil Defense" (1 CP) and "Environmental Protection" (1 CP).

Degree awarded and/or qualification to be obtained: Bachelor of Science in Biology.

Opportunities of continuing studies: continuing education in DU Master's study programmes: "Biology", "Environmental Planning", "Management of Society and Institutions", "Educational Sciences (by obtaining a teacher's qualification in the field of natural sciences)".

Basic principles and procedure of acquisition and assessment of the study programme: the following principles are applied in the acquisition and assessment of the study programme:

- the principle of openness;
- principle of obligation;
- the principle of assessment review options;
- the principle of diversity of the types of tests used

The principles and procedures for the assessment of the study outcomes are stated in the "Regulations on studies at Daugavpils University"[1]. A more detailed description of the assessment is reflected in the credit requirements of each individual study course. Study outcomes are assessed on a 10-point scale or with a "pass/fail" rating.

Appendices of the report summarize the study programme parameters testifying to the compliance of the study programme to the state education standard (*3.2.1.ABSP Biology_Compliance with national education standard*). ABSP "Biology" study programme curriculum is provided in appendix (*3.2.1.ABSP Biology_study plan*), whereas study programme course descriptions are supplied in appendix *III_3.2.1_ABSP Biologija studiju kursu apraksti*). Study course mapping for achieving the study programme outcomes see in appendix (*3.2.1.ABSP_Biology_Study course mapping*).

[1] Regulation on studies at Daugavpils University. Available: https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf [viewed 28.02.2023]

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

Various study methods are used in the practical implementation of the study programme, the most important of which are the systems approach and the problem-oriented approach. Forms of the acquisition of the study programme are lectures, laboratory works, seminars, students' independent work, research projects and their presentation (for example, reports on field courses), independent work, group work, colloquia, tests, term papers, bachelor thesis.

Lectures focus on the review of the basic problems of the content of the study courses. Lecturers use video projectors and interactive whiteboards in lectures. The use of video projectors and interactive whiteboards in lectures should be considered the most optimal, because the electronic versions of the lecture material allow, if necessary, to quickly modify and improve the material presented in the lectures.

Laboratory works take place in the laboratories of the Institute of Life Sciences and Technologies of DU, in the laboratories of the Department of Anatomy and Physiology of Faculty of Natural Sciences and Mathematics, in the laboratories of the Department of Environmental Science and Chemistry. The laboratories are equipped according to the modern requirements, including laser scanning microscopes, electron microscopes, gene analyzer, flow cytometer, gene amplifier, various spectrophotometers for DNA, RNA, protein quantification, equipment for digital recording of gel photos, elysis centrifuges, etc.

Practical classes mostly take place as part of field courses, when students practically implement their theoretical knowledge, skills, and abilities obtained during theoretical classes. It gives an opportunity to apply theoretical knowledge in solving specific problems in nature.

Seminars are an important form of studies, because the ability to pose a problem, find ways to solve it, as well as the ability to discuss is the basis of a biologist's professional activity. Special attention in the seminars is paid to those issues, deep and comprehensive learning whereof is vitally important for comprehensive acquisition of the respective course. In seminars, students acquire the ability to demonstrate their understanding of a specific topic, to discuss problems. Discussions and public presentations of the prepared topic give a strong motivation for students to seriously engage in independent study work. The number of student and academic staff member contact hours and the amount of independent work of the student are balanced in the process of learning the study courses.

Team (group) work in compulsory and limited optional courses is used mainly in seminar classes, analyzing the mistakes made during the discussion of problems (questions) and searching for possible solutions to problems (questions), as well as solving the tasks provided in field courses. Special attention is paid to high-quality organization of students' independent work, because, taking into account that the parents of many students do not have the opportunity to support their studies, students are forced to enter the labor market during their studies. On the one hand, it is very positive, because students get to know the demand of the labor market and its problems. On

the other hand, early entry into the labor market raises concerns about the quality of studies, as students cannot always attend lectures and other types of classes. Therefore, serious work is being done to prepare study materials in an electronic version, which would allow students to learn the study material independently. Continuation of this work is one of the study work priorities of the academic staff involved in the program.

Individual work is practiced rather broadly, because individual assignments allow the instructor to identify in good time the questions that the students have not mastered sufficiently well, and secondly, to a certain extent, solve the problems of class attendance.

The organization and implementation of the study process for those studying in English will be based on the same principle as for those studying in Latvian.

The ratio between contact classes and students' independent work is 40% of the total amount of credit points. Studies in the e-environment are used to optimize students' independent work. A large part of the study materials are placed in the Moodle environment, which is used as an additional communication tool between academic staff members and students. Many courses offer tasks for independent work, as well as additional study materials and forms of interactive discussion.

Both the principles of the programme implementation and the content of specific study courses are subject to the principles of student-centered education. When organizing the study process, students' opportunities are taken into account: when creating class schedule, it is coordinated with students as far as possible. Taking into account the demand, individual and group consultations are organized at the time most convenient for students. When implementing the programme in face-to-face form, students are given the opportunity to connect to the class through the zoom conference website if necessary. The Moodle platform is broadly used for independent work.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

Students choose the topics of their bachelor theses by consulting their scientific advisers who are specialists in their field and have extensive work experience. The topics of the term papers and the scientific advisers of the papers are approved at the meeting of the study direction "Life Sciences" Council, where one of the assessment criteria is relevance in the respective branch. Scientific advisers help to choose the most relevant topics in the branch and coordinate the further advancement of a specific topic for consideration by the study direction council. The topics of bachelor theses are coordinated by the study direction council and approved by the Faculty of Natural Sciences and Mathematics council.

The topics of biology bachelor theses are basically related to the directions of scientific specialization of the academic staff involved in the implementation of the study programme. The topics of bachelor theses developed during the reporting period correspond to the current affairs of modern biological science and have been related to various sub-branches of biology – biotechnology (e.g. "Effect of different concentrations of iron nanoparticles on red clover (*Trifolium pratense*) callus cells"; "The potential of use of iron (II, III) oxide nanoparticles in regulating the amount of resistance-related miRNA (miR159) and increasing genetic variation in yellow alfalfa (*Medicago falcata* L.) plants"), parasitology (e.g. "Blood parasite fauna of the black flycatcher *Ficedula hypoleuca* in the pine forests of Krāslava district, Krāslava civil parish"), ecology (e.g. "Systematics, distribution and ecology of the genus *Lobaria (Schreb.) Hoffm*. 1796 in Latvia"; "Changes in the diversity of epiphytic and epixylic lichen species on different ecological structures in oligotrophic young pine stands"), taxonomy (e.g. "*Genus Pachyteria Audinet-Serville*, 1833 (*Coleoptera: Cerambycidae*) world fauna and distribution"; "*Ruteli nae (Coleoptera: Scarabaeidae*) beetle fauna and distribution in the Philippine Archipelago"), aquaculture (e.g. "Determining the gender of the Siberian sturgeon and evaluating the degree of maturity"), biodiversity protection (e.g. "The importance of birds in the composition of the diet of the Latvian population of forest shrew (*Dryomys nitedula*)"; "Analysis of suitable habitats for the conifer woodpecker (*Tragosoma depsarium*) in economic forests – a compromise between nature protection and the use of forest resources"), animal and human physiology (e.g. "Dynamics of blood glucose in the green sea bream *Carudelis chloris*"; "The effect of the Rhesus conflict on female pregnancy in Latvia (2000-2017)"), as well as other sub-branches of biology. See the list of topics and evaluations of defended bachelor theses for the period from 2017 to 2022 in the appendix (*3.2.6.ABSP Biology_Bachelor theses defended*).

DU has developed and follows the "Procedure for submission of final theses for plagiarism control at Daugavpils University"[1], which provides for mandatory submission and storage of electronic versions of final theses in the Information System of DU and provides an opportunity to compare students' final theses with the set of theses defended in previous years.

Each bachelor thesis is evaluated by one reviewer, who assesses the technical design of the thesis, compliance with the bachelor level, the structure and content of the thesis, incl. the actuality of the work. During the defense of the student, the thesis commission evaluates the bachelor thesis taking into account the relevance of the work, presentation skills and knowledge, answers to questions, substantiation of one's opinion and the quality and use of the demonstrated material during the defense. The final evaluation is made up of the average evaluation mark of the reviewer and the commission.

Assessment in the study programme is carried out based on the following principles:

- the evaluation criteria are clear and understandable, are previously published and available,

- evaluators are familiar with testing and examination methods,

- assessment gives students the opportunity to show to what extent they have achieved the expected learning outcomes;

- students receive feedback, which, if necessary, provides advice related to the learning process,

- assessment is consistent, fair, suitable for all students and is implemented in accordance with legislation and approved procedures,

- there is a procedure for examining student appeals.

[1] Procedure for submission of final theses for plagiarism control at Daugavpils University. Available: https://du.lv/wp-content/uploads/2022/09/Procedure-of-thesis-submission-for-plagiarism-control.pdf [viewed 28.02.2023]

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The implementation of the ABSP “Biology” is carried out both using the shared infrastructure of DU (for more detailed information, see section 2.3.2), as well as the specialized laboratories corresponding to the specifics of a particular study course and the equipment available in them, provided by several structural units of DU: Institute of Life Sciences and Technologies (Department of Biotechnologies, Department of Biosystematics, Department of Ecology, DU Study and Research Center “Ilgas”, Department of Technologies, Department of Applied Chemistry), Faculty of Natural Sciences and Mathematics (Department of Anatomy and Physiology, Department of Chemistry and Geography), DU Agency “Latvian Institute of Hydroecology”. In order to provide field courses, as well as to conduct field research within the framework of studies and bachelor theses, field research equipment at the disposal of the specified DU structural units is also available to students.

Upon the proposal of the instructor of the study courses, for the realization of individual study courses or in cases where students choose specific topics of studies and bachelor theses, the director of the study programme can also agree with other scientific institutions (e.g. Latvian University of Biosciences and Technologies, Latvian State Forest Research Institute “Silava”, etc.) as to the opportunity of using the specific equipment available in the scientific laboratories, usually engaging the researchers of these institutions as consultants or supervisors.

ABSP "Biology" students have access to all services offered by the DU Library - the library's electronic catalog, ordering, reserving and renewing books online, automated user service, as well as access to electronic databases subscribed to DU, incl. Web of Science, Scopus, Science Direct, etc. (for more detailed information, see section 2.3.3 of the description of the field of study). Number of books in the field of biological sciences – 3487, incl. 923 in English, that is 26% of the

books in the field of biology; in the field of environmental science – 1995, incl. 300 in English, that's 15% of the books in the field of environmental science". Students are also provided with opportunities to use the specialized scientific literature available in the scientific laboratories of the Institute of Life Sciences and Technologies of DU.

The provision of the study direction “Life Sciences”, including infrastructure and equipment, guarantees a high quality study environment for high quality implementation of the study programme and the achievement of study outcomes for all those studying in the study direction (including students with special needs).

For detailed information on the infrastructure and material and technical provision available for the implementation of the study direction and corresponding study programmes, see appendix (*2.3.2.Infrastructure and un material and technical provision*).

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

ABSP “Biology” funding source is the state budget funding for studies (grant) and tuition fees. The calculation of costs for one student in the study field programs is performed in the DU Finance and Accounting Department, including the salary fund and the employer's State Social Insurance Mandatory Contributions, business trip, material, energy and inventory costs, purchase of books, equipment and investment costs, as well as social security costs for students. Calculation of costs per student of ABSP “Biology” (full-time studies, 3 years, 122 CP) and information on the percentage distribution of funding see in the Table 3.3.3.1.

Table 3.3.3.1. Calculation of costs per student of ABSP “Biology”

No.	Name	Sum (EUR)	% distribution
1	Salary fund per student	2888.81	56.8
2	Employer's SSIAI 23.59%	681.47	13.4
3	Business trips and business trips costs per student	91.46	1.8

4	Services per student	302.70	6.0
5	Costs of materials, energy, water and inventory per student	330.48	6.5
6	Cost of purchasing books and magazines per student	159.10	3.1
7	Equipment purchase and investment costs per student	466.88	9.2
8	Student social security per student	164.34	3.2
	Total costs for 1 student per 1 study year	**5085.24**	**100.0**

The costs per student in the study programme in Latvian and in English will not differ. The minimum number of students in a group to ensure the profitability of the study program is 9 students in a group.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The qualifications of teaching staff involved in ABSP "Biology" fully meet the conditions of the study programme implementation, programme content, and the requirements of regulatory acts. See the attachment for the statement that the academic staff involved in the implementation of the academic study programme meets the requirements specified in the third paragraph of the first part of Article 55 of the Act on Higher Education Institutions (*3.4.1.ABSP Biology_Statement_Article 55*). The proficiency of the state language of the academic staff employed in the implementation of the study direction programmes complies with the regulations on the state language proficiency level and the procedure for testing it for the performance of professional and official duties, respectively, they allow any course in the study direction to be fully taught in the state language. The level of English language knowledge of the lecturers involved in the study programme allows the study programme to be fully realized in English (*2.3.7. Basic information about teaching staff*).

At the time of drawing the accreditation report, a total of 24 lecturers are involved in the implementation of ABSP "Biology" (see Table 3.4.1.1), whereof 21 are elected as academic staff members at DU, while 3 are visiting lecturers. 21 lecturers or 87.5% of the total number in the study programme hold a doctoral degree.

Table 3.4.1.1. ***ABSP "Biology" academic staff***

Position	Number	*% from total*	*Elected at DU*	*Visiting lecturer*
Professor	4	17	4 (100 %)	
Assoc. prof.	1	4	1 (100 %)	
Docent	6	25	5 (83 %)	1
Leading researcher	7	29	7 100 %	
Researcher	3	13	3 100 %	
Lecturer	2	8	1 (50 %)	1
Assistant	1	4	-	1
Total	**24**	**100**	**21**	**3**

According to the collected data, DU academic staff and visiting lecturers purposefully and regularly engage in various professional development activities in the fields corresponding to their scientific interests, both at DU and at foreign universities. In addition to the academic work at the university, the academic staff has practical experience in the implementation of branch-related projects and contractual works. This type of activity contributes to a comprehensive understanding of the specifics of the branch, thus ensuring a direct unity of theory and practice during the study process. The list with the experience of the academic staff involved in the implementation of the study programmes of the study direction “Life Sciences” in the implementation of branch projects is attached in the appendix *2.4.3.Participation in projects*, whereas the list of the academic staff members is provided in appendix *2.4.4.List of scientific publications* with indicated study programme related scientific publications and research achievements and patents of 6 recent years. See CVs of the academic staff members in appendix *2.3.7.CV of academic staff.*

The directions of the research work of the academic staff involved in the study programme are focused on the successful implementation of the study programme and in most cases are related to the teacher’s specialization within the programme. Academic staff members prepare scientific articles published also in internationally peer-reviewed journals, participate in conferences and practical seminars, training, internships and various scientific events, publish textbooks and develop methodological materials, participate in international and national research projects.

The research carried out by the academic staff is an important contribution to the development of the branch they represent, as well as to the development of the study programme, improvement and updating of the study content. The research covers both theoretical aspects and current developments in the branch of biology, which are used in the respective study courses, thus promoting the interaction of the research and study process and significantly improving the quality of the study process. The participation of students in scientific and practical conferences and seminars as listeners is constantly encouraged.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

Since the previous accreditation of the study direction, some changes have been made in the composition of the academic staff, which are basically related to the integration of new study courses into the curriculum or exemption of previously taught study courses from it; see for more detailed information report section 3.1.1).

At the time of submission of the report, the study courses included in the study programme are provided by 24 lecturers, 21 of which are elected at DU. 87.5% of the academic staff involved in the implementation of the study programme have a doctoral degree, which confirms the professionalism and high qualification of the academic staff members. At the same time, the involvement of young specialists in the study process is also being considered in order to promote the rejuvenation of the academic staff. Several young scientists and 2 doctoral degree candidates are currently involved in the implementation of the study programme.

In some cases, the changes are related to those initiated by the structural units providing the study courses, or the study direction council, taking into account the results of student surveys or other reasoning. Part of the changes in the list of the academic staff teaching the study courses were also related to the termination of employment relations with individual teachers (e.g. R. Cibulskis, Z. Sondore, D. Pilāte, E. Tamanis, etc.). When making decisions on the inclusion of new instructors in the provision of study courses, their experience and specialization was evaluated, ensuring the recruitment of specialists with equivalent or higher qualifications.

When implementing the study programme, the study field council ensures that changes in teaching staff do not affect the quality of the study process. When making decisions on the inclusion of new lecturers in the provision of study courses, the experience and specialization of the specific lecturers is evaluated, ensuring the attraction of specialists with equivalent or higher qualifications.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The cooperation of the academic staff of the study programme is diverse, deciding on activities related to the organization and management of the learning process; considering questions about the content of studies; when planning scientific events; cooperating in the research field (conducting joint research within projects, writing publications, participating in scientific conferences, etc.).

The content and structure of the courses are discussed at regular meetings of the academic staff, discussing how to maintain systemic approach as the basic principle of study course development within the study programme, how to improve the forms of organizing the learning process in order to facilitate the growth of students. Such discussions take place both collectively and individually.

At the end of each study year, academic staff workloads for the next academic year are planned in structural units. Taking into account the results of the evaluation of the relevant study courses by the students of the programme and self-analysis of the academic activity performed by the instructors, the suitability of the academic staff for the development and teaching of the specific study courses is evaluated. Approval of academic workloads is carried out in accordance with the "Procedures for accounting the workload of academic staff at DU".

In 2022/2023, a total of 24 academic staff members are involved in the implementation of the bachelor study programme. At the time of submission of the accreditation report, ABSP "Biology" has a total of 25 students.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	3.1.2.ABSP Biology_Diploma and supplement_EN.zip	3.1.2.ABSP Bioloģija_Diploma un pielikuma paraugs_LV.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	3.1.4.ABSP Biology_Statistical data students_ENG.xlsx	3.1.4.ABSP Bioloģija_Statistikas dati par studējošajiem_LV.xlsx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	3.2.1.ABSP Biology_Compliance with national education standard_EN.docx	3.2.1.ABSP Bioloģija_Atbilstība valsts izglītibas standartam_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	3.2.1.ABSP_Biology_Study course mapping_EN.docx	3.2.1.ABSP_Biologija_kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	3.2.1.ABSP Biology_study plan_ENG.xlsx	3.2.1.ABSP Bioloģija_studiju plāns_LV.xlsx
Descriptions of the study courses/ modules	3.2.1.ABSP Biology_Description of study courses_EN.zip	3.2.1.ABSP Bioloģija_Studiju kursu apraksti_LV.zip
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	3.4.1.ABSP Biology_Statement_Article 55_EN.docx	3.4.1.ABSP Bioloģija_Apliecinājums par personāla atbilstību 55.pantam.edoc

Biology (51421)

Study field	*Wildlife Sciences*
ProcedureStudyProgram.Name	*Biology*
Education classification code	*51421*
Type of the study programme	*Doctoral study programme*
Name of the study programme director	*Arvīds*
Surname of the study programme director	*Barševskis*
E-mail of the study programme director	*arvids.barsevskis@du.lv*
Title of the study programme director	*Dr. biol., profesors*
Phone of the study programme director	
Goal of the study programme	*To prepare a highly qualified specialist, scientist in biology who is able to set and solve the most important problems of modern biology.*
Tasks of the study programme	*1. provision of knowledge corresponding to the modern level to students involved in the biology study programme;* *2. acquisition of modern research methodologies in biology that provide for investigating specific problems of the sub-branches of biology;* *3. practicing of students in carrying out scientific and educational work;* *4. participation of students in research conducted by DU and other Latvian or foreign scientific institutions, regular participation in scientific conferences, publications in internationally recognized biological journals that reflect the results of the selected research;* *5. creation of optimal conditions for the realization of the objectives set for doctoral students, work in libraries, museums, research institutions in Latvia and abroad, participation in scientific conferences of other universities, opportunities for internships in universities of the relevant profile abroad;* *6. provision of conditions for the elaboration and defense of a doctoral thesis.*

Results of the study programme	*Knowledge:* *1. Knows and understands the most current scientific theories and methods in biology.* *2. Familiar with modern research methodology and modern biological research methods in various sub-fields.* *Skills:* *3. Able to independently evaluate and choose suitable scientific research methods, contribute to expanding the frontier of knowledge or provide a new understanding of existing knowledge and its application in practice, including by publishing scientific publications.* *4. Able to communicate both orally and in writing with his scientific field to the wider community of scientists and society in general.* *5. Able to independently improve their scientific skills, implement scientific projects, achieving international science-qualifying achievements.* *Competences:* *6. By performing independent, critical analysis, synthesis and evaluation, is able to solve important research or innovation tasks.* *7. Competent to propose the research idea, plan and structure independently.* *8. Capable of managing large-scale scientific projects, including in an international context.*
Final examination upon the completion of the study programme	*Doctoral examination in speciality and Doctoral examination in English*

Study programme forms

Full time studies - 3 years - latvian

Study type and form	*Full time studies*
Duration in full years	*3*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*120*
Admission requirements (in English)	*- Master's degree in biology or related fields or equivalent higher education; - Test in biology and conversation in a foreign language (in English)*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Doctor of Science degree Doctor of Science (Ph.D.) in Natural Sciences*
Qualification to be obtained (in english)	*-*

Places of implementation

Place name	City	Address
University of Daugavpils	DAUGAVPILS	VIENĪBAS IELA 13, DAUGAVPILS, LV-5401

Full time studies - 3 years - english

Study type and form	*Full time studies*

Duration in full years	*3*
Duration in month	*0*
Language	*english*
Amount (CP)	*120*
Admission requirements (in English)	*- Master's degree in biology or related fields or equivalent higher education; - Test in biology and conversation in a foreign language (in English) For studies in English: At least B2 level knowledge of the English language.*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Doctor of Science degree Doctor of Science (Ph.D.) in Natural Sciences*
Qualification to be obtained (in english)	*-*

Places of implementation

Place name	City	Address
University of Daugavpils	DAUGAVPILS	VIENĪBAS IELA 13, DAUGAVPILS, LV-5401

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

No changes have been made in the parameters of the study programme since the previous accreditation. Taking into account the planned changes in the implementation of doctoral study programmes in Latvia, which will be implemented on the basis of the conceptual report “On the implementation of a new doctoral study model in Latvia” (supported on June 25, 2020 by Cabinet of Ministers Order No. 345), also the doctoral study programmes implemented by DU (including DSP “Biology”) will undergo a gradual transition to the new doctoral studies model. The conceptual report holds that every university should organize doctoral-level studies in centrally established structural units – doctoral schools. For the successful implementation of the transition in 2020, DU developed the “Doctoral Study Programme Development Plan 2020-2026". for the implementation of the new doctoral model at Daugavpils University” (approved at the meeting of the DU Science Council on 22.10.2020 (minutes No. 11, decision No. 1/1)). In 2023, it is planned to develop the regulations of the DU Doctoral School, which will ensure the compliance of the DU Doctoral School with European best practices and international standards, as well as provide conditions for cooperation with other Latvian and foreign scientific institutions and higher education institutions. In 2023/2024, DSP “Biology” 1st year students will start their studies at the Doctoral School of DU, while complete transition to the new doctoral model at Daugavpils University is planned to be completed by the end of 2026.

The curriculum of the current DSP “Biology” includes specialization courses in systematic biology and ecology, however, this limits students’ specialization options. Therefore, it is suggested to offer students a new study course “Specialization Course in Biology” of 18 CP, the content of which will be appropriate for the chosen specialization of each doctoral student. The current curriculum includes the study course “Research methodology acquisition and approbation” of 6 CP. In order to facilitate the use of as diverse and modern research methods as possible in the development of doctoral theses, the volume of this course is planned to be increased to 18 CP. A significant part of the study courses “Research methodology acquisition and approbation” and “Specialization course in biology” could be realized within the framework of the Doctoral School, incl. in doctoral schools organized by other Latvian and foreign universities, according to the specialization chosen by the students.

Currently, the curriculum of DSP “Biology” provides a study course “English for biologists” of 4 CP. This study course is suggested to be deleted from the curriculum, because according to the admission requirements, when entering DSP “Biology” students are interviewed in a foreign language (in English) and students with weak English language skills are no longer admitted. It is also suggested to abandon the study course “Teaching activity”, which is currently implemented in the amount of 8 CP.

Taking into account the prerequisites for the doctoral study programme quality assurance defined in the conceptual report “On the introduction of a new doctoral model in Latvia”, the study courses envisaged in the new DSP “Biology” – “Research methodology acquisition and approbation” (18 CP)

and “Specialization course in biology” (18 CP) altogether make 36 CP, while 84 CP are allocated for the elaboration of the doctoral thesis.

DSP “Biology” parts and their amount in the current version of the programme (students were enrolled until the academic year of 2022/2023)

- Compulsory courses (10 CP):

– *English for biologists (4 CP)*; *Research methodology acquisition and approbation (6 CP);*

- Specialized choice courses (15 CP) – study courses depend on the selected specialization in systematic biology or ecology:
- *Current paradigms of systematic biology (4 CP); Specialization course in systematic biology (6 CP); Research seminar in systematic biology (5 CP).*
- *Current paradigms of ecology (4 CP); Specialization course in ecology (6 CP); Research seminar in ecology (5 CP).*
- Individual research work and elaboration of doctoral thesis (95 CP):
- *Teaching activity (8 CP); Elaboration of doctoral thesis (87 CP).*
- Doctoral examinations – completing the studies students take *Doctoral examination in speciality* and *Doctoral examination in English*.

DSP “Biology” parts and their amount after the changes planned (students are planned to be enrolled from the academic year of 2023/2024)

- Compulsory courses (18 CP):
- *Research methodology acquisition and approbation (18 CP).*
- Specialized choice courses (18 CP):
- *Specialization course in biology (18 CP).*
- Individual research work and elaboration of doctoral thesis (84 CP):
- *Elaboration of doctoral thesis (84 CP).*
- Doctoral examinations – completing the studies students take *Doctoral examination in speciality* and *Doctoral examination in English*.

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

DSP “Biology” is a doctoral-level study programme included in the study direction “Life Sciences” implemented by DU. DSP “Biology” provides high-quality and versatile education in the field of biological sciences at the doctoral programme level.

The aim of the study programme is to prepare a highly qualified specialist, scientist in biology who is able to set and solve the most important problems of modern biology.

Programme objectives:

- provision of knowledge corresponding to the modern level to students involved in the biology

study programme;
- acquisition of modern research methodologies in biology that provide for investigating specific problems of the sub-branches of biology;
- practicing of students in carrying out scientific and educational work;
- participation of students in research conducted by DU and other Latvian or foreign scientific institutions, regular participation in scientific conferences, publications in internationally recognized biological journals that reflect the results of the selected research;
- creation of optimal conditions for the realization of the objectives set for doctoral students, work in libraries, museums, research institutions in Latvia and abroad, participation in scientific conferences of other universities, opportunities for internships in universities of the relevant profile abroad;
- provision of conditions for the elaboration and defense of a doctoral thesis.

Enrollment in the study program takes place in accordance with "Daugavpils University admission rules for full-time and part-time higher level studies"[1], which are annually approved by the DU Senate. The required level of education for admission is a Master's degree in biology or related fields or an equivalent higher education. During the admission, discussions on the research topic and discussions in a foreign language (English) are organized. These entrance discussions assessment concerns the applicant's detailed proposal for the doctoral research, the applicant's motivation, scientific relevance and compliance with the priority directions of the development of biological science. The applicant's prior achievements are also important including scientific publications, participation in international scientific conferences, connection of professional activity with the topic of the doctoral thesis, as well as knowledge of a foreign language (English).

The aim and objectives of the study programme, as well as the study outcomes obtained during the studies, correspond to the eighth level of EQI, which is the level of doctoral studies. Programme code 51421 reflects the status and content of the programme, in accordance with the requirements set out in the "Regulations on Latvian Education Classification" (MK 13.06.2017. Regulations No. 322). The first digits of the code 51 denote doctoral studies (doctoral degree), which can be implemented after obtaining a master's or professional master's degree or as sequel to education programme with code 49. The second part of the code corresponds to the thematic field of education (42 – Life Sciences) and the group of educational programmes (421 – Biology).

DSP "Biology" implemented at Daugavpils University is implemented in the format of a full-time study programme. The name of the programme, the degree to be obtained, goals and objectives, student admission requirements are interconnected. DSP "Biology", which is planned to be implemented within three years leading to obtaining by the graduate a doctoral degree (Ph.D.) in natural sciences, opens opportunities to independently develop and manage scientific research projects, publish the research results in internationally cited publications in Latvia and abroad, publicize the results of scientific research at conferences and seminars, to promote the implementation of innovations in research practice.

According to the current DSP "Biology" study plan, within the study programme, students are offered to study specialization courses in systematic biology (*Modern paradigms of systematic biology (4 CP); Specialization course in systematic biology (6 CP); Scientific seminar in systematic biology (5 CP)*) and ecology (*Paradigms of modern ecology (4 CP); Specialization course in ecology (6 CP); Scientific seminar in ecology (5 CP)*), however, experience so far shows that the areas of specialization of interest to students cover much wider sub-fields of biology. Therefore, for students who will start their studies in 2023/2024, it is encouraged to offer a new study course *Specialization Course in Biology* in the amount of 18 CP, the content of which will be appropriate for the chosen specialization of each doctoral student. The planned changes should contribute to the increase in the number of students at DSP "Biology", as wider specialization options will allow attracting

students who want to develop doctoral theses in areas not related to systematic biology and ecology.

On the study programme acquisition diploma and its appendix sample in accordance with the Cabinet of Ministers regulations of 16.04.2013. No. 202 as well as agreement on studies sample in accordance with the Cabinet of Ministers regulations of 23.01.2007. No. 70 see (*3.1.2.DSP Biology_Diploma and transcript* and *3.1.2.DSP Biology_Agreement on studies*).

[1] Daugavpils University admission rules for full-time and part-time higher level studies (international students). Available: https://du.lv/en/studies/admission/ [viewed 28.02.2023]

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

In order to improve the integration of science in studies, to improve the management of knowledge and technology, to promote scientific activity and to adjust the research activity in general to the needs of the market, international level research is being carried out in the field of research specialization “Natural Sciences” of DU. The direction of specialization “Natural Sciences” purposefully develops cooperation with representatives of industry, expands international partnership in scientific networks and consortia, as well as, jointly with entrepreneur and employer associations, adjusts research to the needs of industry.

DU's scientific excellence, intellectual and infrastructural capacity, as well as knowledge and technology transfer, accumulated experience in the implementation of important international projects, inclusion in information circulation and cooperation networks contribute to science, innovation, and doctoral development in the above-mentioned DU specialization directions, which generally correspond to the following Smart Specialization Strategy (RIS3) priority directions: Knowledge-intensive bioeconomy; Biomedicine, medical technology, biopharmaceutics and biotechnology.

According to the data of the Ministry of Education and Science for the period from 2016 to 2020, 71% of the number of doctoral students studying in this field in Latvia were concentrated in the doctoral level of the study direction “Life Sciences”, which confirms the great importance of the study programme in the preparation of new doctors in this branch of science in Latvia. 8% of Latvia’s total amount of science in the field of natural sciences, as well as 5% of the total number of scientific publications in the field of natural sciences in Latvia, were concentrated in the “Natural Sciences” specialization of DU. The most significant part of these indicators was provided directly by the scientists and teaching staff employed in the research direction “Biology” and the study direction “Life Sciences” of DU. Although agricultural and veterinary sciences are not defined as DU specialization areas, however, DU scientists in this field also provided 7% of the total number of publications in Latvia, as well as 7% of the scientific articles published in this field in the Q1 journal.

The development of doctoral studies at DU also plays an important role from the point of view of national security. The city of Daugavpils and the region of Eastern Latvia are distinctly multicultural and located on the border of the European Union. DU is the most important center of science, higher education, and Latvian culture promotion in the region.

Analyzing further career and employment data of DU DSP “Biology” graduates and doctoral degree

holders in the period from 2017-2022, it can be concluded that 11 out of 12 persons who defended their doctoral theses in the period under review are employed as scientists or academic staff in scientific institutions or higher education institutions in Latvia or abroad, participate in scientific work and are published in internationally indexed scientific publications, while 4 of them are also LCS experts, which attests to the high quality and competitiveness of the education offered by DSP "Biology". More detailed data for the period of 2017-2022 concerning the employment and scientific indicators of persons who obtained a doctorate scientific degree, see in appendix (*3.1.3.Employment and scientific indicators Doctors degree*).

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

At the time of submission of the accreditation report, DSP "Biology" has a total of 24 students (9 students in the 1st year of studies, 9 students in the 2nd year and 6 students in the 3rd year). During the period from 2017 to 2022, a total of 42 students were enrolled to DSP "Biology". Comparing the enrollment indicators by year, on average 7 students are annually enrolled in the 1st year. Over the past two years, a slight increase in the number of students has been observed in relation to the average number of students enrolled in the reporting period – 9 students were enrolled in 2021 and 8 students in 2021. Considering the Covid-19 pandemic, the demographic situation, etc. influencing factors in the reporting period, the increase in the number of students indicates the development potential of the programme. Most of the students studied with state budget funds, except for 2 students admitted in 2021 who studied with personal funds (*3.1.4.DSP Biology_Statistical data students*).

Evaluating student dropout at DSP "Biology", it can be concluded that during the reporting period 19 students, or 45% of those who started their studies stopped their studies. The high number of student dropouts in doctoral study programmes is an actual problem in Latvia as a whole. The most important reason for the large dropout of doctoral students is the current funding model, which does not cover the actual costs of implementing the doctoral programme and thus threatens the sustainability of the doctoral programme and does not stimulate increase in study quality. The low amount of income (grant) of a doctoral student has a negative impact on both the time that the doctoral student can devote to studies, the quality of the doctoral thesis, as well as the number of doctoral degree holders and, consequently, the rejuvenation of the academic staff and scientific workers of the higher education and science sector.

The statistics of the number of students do not include foreign students who have studied at AMSP "Biology" within the framework of various mobility programs and have been matriculated for a specific study periodDuring the reporting period, 2 students studied at DSP "Biology" as part of mobility programs - one student from Jamaika and one student from Lithuania. Statistics of the number of students enrolled within mobility programmes in the reporting period is provided in appendix (*2.5.3.Incoming and outgoing mobility DU students*).

Statistical data on those studying in DSP "Biology" during the reporting period are summarized in the appendix of the report *3.1.4.DSP Biology_Statistical data students*

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The content of DSP “Biology” is focused on developing the competences necessary for the branch of biology science, acquisition of current scientific theories and ideas as well as research methodologies.

Content of study courses offered in the study programme, achievable results, set goals, etc. indicators are interconnected with the study programme goals and achievable results (see the descriptions of DSP "Biology" study courses in appendix 3.2.1.). The content of the study courses corresponds to the current affairs of the industry, as well as the needs of the labour market and science. The set requirements regarding the publication of research results in internationally indexed scientific publications, as well as participation in international scientific conferences, develop students' abilities to independently perform critical analysis, synthesis and evaluation of scientific information, as well as to solve important research or innovation tasks.

Study programme aim: preparation of a highly qualified specialist, a scientist in biology who is able to set and solve the most important problems of modern biology.

Study programme objectives:

The study outcomes obtained in the study programme (knowledge, skills, and competence) must ensure the achievement of the aim of the study programme, thereby contributing to the growth of the knowledge and innovation-based economy of the Republic of Latvia and the well-being and sustainability of the Republic of Latvia.

Knowledge. Students in the programme have a command and understand the current scientific theories and findings in biology, modern research methodologies and modern research methods in various sub-branches of biology.

1. Knows and understands the most current scientific theories and methods in biology.
2. Familiar with modern research methodology and modern biological research methods in various sub-fields.

Skills. In the course of learning the programme, students are able to independently evaluate and choose appropriate methods for scientific research, have made an investment in expanding the boundaries of knowledge or given a new understanding to existing knowledge and its applications in practice, by carrying out a significant amount of original research, some of which is at the level of internationally cited publications. Able to communicate both orally and in writing about his field of scientific activity with wider scientific circles and society in general. Able to independently improve his scientific qualifications, implement scientific projects, achieving achievements that meet the international criteria of the scientific field.

3. Able to independently evaluate and choose suitable scientific research methods, contribute to expanding the frontier of knowledge or provide a new understanding of existing knowledge and its application in practice, including by publishing scientific publications.
4. Able to communicate both orally and in writing with his scientific field to the wider community of scientists and society in general.
5. Able to independently improve their scientific skills, implement scientific projects, achieving international science-qualifying achievements.

Competences. Students are able, by performing independent, critical analysis, synthesis and evaluation, to solve important research or innovation tasks, independently put forward a research idea, plan, structure and manage large-scale scientific projects, including in an international context.

6. By performing independent, critical analysis, synthesis and evaluation, is able to solve important research or innovation tasks.
7. Competent to propose the research idea, plan and structure independently.
8. Capable of managing large-scale scientific projects, including in an international context.

Study programme amount (CP): 120 CP

Study programme duration: 3 years

Programme parts and their amount:

- Compulsory courses (18 CP):
- *Research methodology acquisition and approbation (18 CP).*
- Specialized choice courses (12 CP):
- *Specialization course in biology (18 CP).*
- Individual research work and elaboration of the doctoral thesis (84 CP):
- *Elaboration of the doctoral thesis (84 CP).*
- Doctoral examinations – students take *Doctoral examination in speciality* and *Doctoral examination in English*.

Amount of contact hours (%): 1 credit point corresponds to 40 academic hours, of which 16 hours are contact hours, which is 40% of the expected amount.

Compliance with the requirements of the Law on Environmental Protection and Civil Defense and Disaster Management: the study program offers the study courses "Civil Defense" (1 CP) and "Environmental Protection" (1 CP) (for students who have not studied civil and environment protection in Master's studies.

Degree and/or qualification to obtain: doctor of science degree (PhD) in natural sciences.

Basic principles and procedure of acquisition and assessment of the study programme: the following principles are applied in the acquisition and assessment of the study programme:

- the principle of openness;

- principle of obligation;
- the principle of assessment review options;
- the principle of diversity of the types of tests used.

Taking into account the planned changes in the implementation of doctoral study programmes in Latvia, which will be implemented on the basis of the conceptual report “On the implementation of a new model of doctoral studies in Latvia” (supported on June 25, 2020 by Cabinet of Ministers Order No. 345), DSP “Biology” implemented by DU will also undergo a gradual transition to a new doctoral model. In 2020, DU developed the “PhD study programme development plan 2020-2026 for the implementation of the new doctoral model at Daugavpils University” (approved at the meeting of the DU Science Council on 22.10.2020 (minutes No. 11, decision No. 1/1)). The doctoral study programme development plan is a part of the overall research plan contained in the Development Strategy of Daugavpils University and is aimed at the implementation of the conception included in “Latvian Smart Specialization Strategy". The doctoral study programme development plan consists of two parts: 1) description of the current situation of DU, which includes a review of DU research capacity and doctoral studies, 2) description and appendices of the new doctoral model and its implementation strategies. In 2023, it is planned to develop the regulations of the DU Doctoral School, which will ensure the compliance of the DU Doctoral School with European best practices and international standards, as well as provide conditions for cooperation with other Latvian and foreign scientific institutions and higher education institutions. In 2023/2024, DSP “Biology” 1st year students will start their studies at the Doctoral School of DU. The gradual transition to the new doctoral model at Daugavpils University is planned to be completed by the end of 2026.

Acquisition of the courses developed within the study programme, as well as participation in doctoral seminars, doctoral school and systematic cooperation with the doctoral research adviser contribute to broadening students’ outlook and offer a competitive education in the field of biology; it meets the challenges of the future and is based on the emphasis on students’ independent work, synergy of study and research work, preparing specialists who are competitive on the labor market, developing their abilities and motivating lifelong learning.

Appendices of the report summarize the study programme parameters testifying to the compliance of the study programme to the state education standard (*3.2.1.AMSP Biology_Compliance with national education standard*). DSP “Biology” study programme curriculum is provided in appendix (*3.2.1.DSP Biology_Study plan*), whereas study programme course descriptions are supplied in appendix *3.2.1_DSP Biology_study course descriptions*). Study course mapping for achieving the study programme outcomes see in appendix (*3.2.1.DSP Biology_study course mapping*).

3.2.2. In the case of master’s and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

After completing the study program, students with a previously obtained corresponding academic master's degree or corresponding professional higher education in the field of biological sciences obtain a doctoral degree in natural sciences in biology. The awarding of a science degree is based on the achievements and findings of the field of biological science, which is confirmed by the

content of the study programme.

DU scientists make a serious contribution to the solution of various problems important to modern biological science and national economy, including the study and protection of biological diversity, providing interdisciplinary solutions to various environmental protection, health, agriculture, nano safety, energy, conservation of natural resources and many other problems.

DU scientists use their knowledge and creativity by participating in dialogue and working with community to achieve common goals. Based on the strengths of the study direction and the experience of the academic staff, it is possible to adapt or recreate evidence-based research that can address many problems of public importance. It is very important that the staff involved in the study direction provide an innovative study environment and professional experience for students at all levels, especially in the doctoral study programme. It should be noted that currently a great deal of emphasis in knowledge transfer is placed on the interaction of study work with research and student training based on scientific achievements. The interdisciplinary aspect of this aspect and the inclusion of students of different study programs (Biology, Chemistry, Environmental Science, Physiotherapy, Physics, Mathematics, etc.) and of different levels (Bachelor, Master, doctoral) in solving current problems of science and, therefore, society as a whole is essential. In the above-mentioned study programmes, the scientists engaged in the study direction ensure a study process that fully meets modern requirements, including the management of studies, bachelor's, Master's and doctoral theses. Students mostly conduct interdisciplinary research, solving complicated problems, as well as develop new methods and technologies together with the scientific staff, acquire knowledge in the field of patenting.

With the appearance of an increasing demand for innovative products and science-intensive technologies in various fields of industry, a clear trend can be observed – the demand for biodiversity research in the context of nanobiotechnology, biosafety, nature protection, etc. has significantly increased, which indicates a number of global, national, and regional drivers for the development of this research direction. The general development trends of world science are undeniably related to technological development and the increase in demand for scientific technological solutions in industry related to the sector (medicine, biological agriculture, energy, food production, smart materials, ecosystem services, etc.). In the documents of the national economy and science development strategy in Latvia, the direction is defined as a priority, as it contributes to several areas of specialization determined within the framework of the Smart specialization strategy (Research and Innovation strategy for smart specialization – RIS3): knowledge-intensive bioeconomy; biomedicine, medical technology, biopharmaceutics and biotechnology; smart materials, technologies and engineering systems; smart energy.

According to "Daugavpils University development strategy for 2015.-2020"[1] DU has seven priority research directions in biology:

1. Aquacultures and hydroecology;
2. Biological diversity and forest ecology;
3. Animal parasitology;
4. Coleopterology;
5. Nanobiotechnologies and nano biosafety;
6. Molecular ecology;
7. Behaviour and physiological ecology.

When determining the priority directions of research in the field of biology, DU has been guided by the following criteria: number of SCI (Web of Science & SCOPUS) publications, attracted funding, existence of research infrastructure, existence of a scientific group (number of PhDs, number of doctoral students), average citation index, activity in international scientific in networking,

maintenance of international collections and databases, and perspectives in creating clusters with entrepreneurs. When allocating the priority research directions in biology, expert recommendations on the need to consolidate many small research directions around the excellent ones and to form closer cooperation with the national economy were taken into account.

[1] Summary of Daugavpils University development strategy for 2015.-2020. Available: https://du.lv/wp-content/uploads/2022/09/DU-Strategy-summary-1.pdf [viewed 28.02.2023]

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The study work of doctoral students takes place using various forms of work organization, most often – group work classes, seminars, consultations, and individual work. The approval of the doctoral student's individual work plan is coordinated with the doctoral research adviser, but is not regulated outside the structural unit. During the implementation of DSP, doctoral students and after its implementation doctoral candidates conduct research on the topic of their doctoral thesis, publish the main research results in generally recognized peer-reviewed scientific publications, carry out science transfer activities, present research results in scientific seminars, symposia, conferences and congresses. This work is most often done in consultation with the research adviser. The doctoral student's work is supervised by the research adviser and the structural unit in which the scientific work is developed.

Taking into account the planned changes in the implementation of doctoral study programmes in Latvia, which will be implemented on the basis of the conceptual report "On the implementation of a new doctoral study model in Latvia" (supported on June 25, 2020 by Cabinet of Ministers Order No. 345), also the doctoral study programmes implemented by DU, including DSP "Biology" will undergo a gradual transition to a new doctoral studies model. The conceptual report envisages that every university should organize doctoral-level studies in centrally established structural units – doctoral schools. In 2023, it is planned to develop the regulations of the DU Doctoral School, which will ensure the compliance of the DU Doctoral School with European best practices and international standards, as well as provide conditions for cooperation with other Latvian and foreign scientific institutions and higher education institutions. In 2023/2024, DSP "Biology" 1st year students will start their studies at the Doctoral School of DU.

When developing the curriculum of the new DSP "Biology", the recommendations stated in the conceptual report "On the introduction of a new doctoral model in Latvia" were taken into account regarding the proportion of time devoted to research and study course acquisition. According to these recommendations, credit points in doctoral study programmes should be awarded for the time devoted to research, when the doctoral student elaborates a doctoral thesis and internationally recognized scientific publications (~ 70% of the time of full-time studies), and for the time devoted to study courses and mobility (~ 30%).

According to the curriculum (see appendix *3.2.1.DSP Biology_Study plan),* a significant part of the study courses “Research methodology acquisition and approbation” (18CP) and “Specialization course in biology” (18CP) could be realized within the framework of the Doctoral School, incl. in doctoral schools organized by other Latvian and foreign universities, according to the specialization chosen by the students.

In the course of the study programme implementation, all basic principles of student-centered education are observed:

- constant reflection,
- individual approach to students, avoiding a ‘one-size-fits-all’ solution,
- it is taken into account that students have different learning styles, different requirements, interests, experience and previous knowledge,
- students’ knowledge, skills and abilities are evaluated not only by the academic staff, but there should also be self-control over their studies,
- students are offered an opportunity to learn by themselves,
- continuous cooperation between students and academic staff.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

The doctorate promotion process at Daugavpils University is implemented on the basis of the Act on Scientific Activity of the Republic of Latvia, the Act of Higher Education Institutions of the Republic of Latvia, as well as the Cabinet of Ministers decision of 27.12.2005. No. 1001 concerning the “Procedure and criteria for the awarding of a doctoral degree (promotion)”[1]. General procedure of founding promotion councils and procedure of promotion at Daugavpils University are regulated by “Regulations on Daugavpils University promotion councils”[2], whereas the procedure of founding promotion council in biology and procedure of promotion are regulated by “Regulations on Daugavpils University Promotion Council in Biology”[3].

The functioning of DU Promotion Council in Biology is based on the accredited doctoral study programme “Biology”. According to the Regulations on the Daugavpils University Promotion Council in Biology, the permanent composition of the Doctoral Council includes at least five scientists holding Latvia Council of Science (LCS) expert rights in the field of biology. The Promotion Council in Biology must include at least two scientists in the sub-branch of biological science in which the doctoral thesis is defended. Experts who are direct relatives are not included in the permanent

composition of the Promotion Council in Biology. The composition of the current Promotion Council in Biology was approved on 27.02.2018. with DU rector's order No. 4-4/28, it includes 11 experts[4].

Before the elaborated doctoral thesis is submitted to the Department of Sciences of DU, it is examined in the structural unit where it is developed. If the structural unit after reviewing the work decides that the doctoral thesis has been elaborated in accordance with the requirements, it is submitted to the Department of Sciences of DU, which delegates the responsibility for examining the doctoral thesis to the promotion council of the relevant branch of science. Within a month after receiving the doctoral thesis, the promotion council decides on the promotion of the thesis for public defense and the appointment of three reviewers. In case of a positive decision of the State Scientific Qualification Commission (SSQC), the reviewers are involved in the work of the promotion council formed by the university and approved by the rector's order for the defence of the particular doctoral thesis.

When announcing the defense of the doctoral thesis, the information (including the summary of the doctoral thesis) is placed on DU website, where all interested parties can familiarize themselves with it (see here[5]).

For each specific defense of a doctoral thesis, upon the suggestion of the head of the Promotion Council in Biology and the proposal of the vice-rector of science, the rector of DU can issue an order to add to the Promotion Council in Biology other scientists who hold LCS expert rights in the relevant sub-branch of biological science. After hearing the reports of the doctoral candidate and the reviewers, as well as after the scientific discussion, the Promotion Council makes a decision on awarding or refusing the degree by a majority of votes in an open meeting.

The work of the Promotion Council is provided by the Department of Science of DU. The costs of the promotion process for graduates of DU doctoral study programmes are covered from the funds intended for the implementation of the doctoral study programme, if the applicant obtains a doctoral degree within two full calendar years after completing the theoretical studies. If the applicant for a doctoral degree has not completed the appropriate doctoral study programme at DU or completed it more than two full calendar years before without obtaining a degree, the decision concerning the funds to cover the costs of the promotion process shall be taken by the DU Council of Science.

The list of doctoral theses defended at the DU Promotion Council in Biology in 6 recent years see in appendix (*3.2.5_Doctoral thesis defended*).

[1] Cabinet of Ministers decision of 27.12.2005. No. 1001 concerning the "Procedure and criteria for the awarding of a doctoral degree (promotion)" (in Latvian). Available: https://likumi.lv/ta/id/124787-zinatniska-doktora-grada-pieskirsanas-promocijas-kartiba-un-kriteriji [viewed 28.02.2023]

[2] Regulations on Daugavpils University promotion councils (in Latvian). Available: https://du.lv/wp-content/uploads/2021/05/Nolikums-par-DU-Promocijas-padomem-1.pdf [viewed 28.02.2023]

[3] Regulations on Daugavpils University Promotion Council in Biology (in Latvian). Available: https://du.lv/wp-content/uploads/2021/05/Biologijas_promocijas_padomes_nolikums1.pdf [viewed 28.02.2023]

[4] Composition of the Biology Promotion Board (in Latvian). Available: https://du.lv/zinatne/promocija/promocijas-padomes/biologijas-promocijas-padome/ [viewed 28.02.2023]

[5] Information about the defense of the doctoral thesis on the DU website (in Latvian). Available: https://du.lv/promocijas-darbi/pazinojums-par-promocijas-darba-aizstavesanu-rolands-moisejevs/ [viewed 28.02.2023]

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

Students choose the topics of doctoral theses in consultation with their research advisers and the director of the study programme. The director of the study programme evaluates the relevance of the scientific experience of the thesis adviser to the scientific specificity of the topic chosen for the doctoral thesis. It is quite often practiced that research advisers or consultants from foreign scientific institutions who have relevant scientific experience in the chosen topic of the doctoral thesis are invited for elaboration of the doctoral thesis. The thesis adviser and topic are approved by the Doctoral Council of DU. The research adviser provides necessary consultations to the doctoral student both with DU specialists and those from other universities.

In order to ensure the quality of doctoral theses, the choice of reviewers of the appropriate field is also of great importance in the process of defending the doctoral thesis. In accordance with the regulations of the Daugavpils University Promotion Council in Biology, after the work has been submitted to the Promotion Council in Biology, the chair of the council appoints 3 reviewers for the work, 1 of whom is an expert of this council in the relevant sub-branch of science, and 2 are sub-branch experts from other scientific institutions or organizations (preferably outside Latvia).

More detailed information about the promotion process at DU Promotion Council in Biology see in section 3.2.5.

Until now, all doctoral theses developed within the framework of DU DSP “Biology” have been defended at the DU Promotion Council in Biology. In the period from 2017 to 2022, a total of 12 doctoral theses were defended at the DU Promotion Council in Biology. The topics of the doctoral theses defended during the reporting period correspond to the current trends of modern biological science and have been related to various sub-branches of biology – biotechnologies and selection (“Disease resistance of flax genetic resources – evaluation of resistance and improvement methods”; “Impact of various nanoparticles on plants *in vitro* and *in vivo* systems and potential of their use”), parasitology (“Effects of environmental factors on the distribution of ectoparasites in the gill apparatus of fish: preferences, coexistence and interactions”; “Diversity and description of *Sarcocystis* spp. found in the musculature of Latvian wild animals”; “Characteristics of the helminth fauna of homothermic (Soricidae, Cricetidae, Muridae) and poikilothermic animals (Bufonidae, Ranidae) in Latvia”), disease diagnosis (“Investigation of the causative agents of trichinosis and genetic diversity of *Trichinella britov*i population in Latvia”; “Benzanthrone luminophores for efficient and rapid investigation of Trematoda and Nematoda parasites”), ecology (“Study of the biota of Latvian lichens and their related fungi with the example of epixylic lichens in young stands of dry pine forests”), taxonomy (“Taxa of the linden (*Tilia* L.) genus in Latvia and analysis of environmental factors limiting their distribution”), animal and human physiology (“Effects of developmental rate and physiological stress on insect metabolism and behavior”; “Compromises between the growth, immune system functioning efficiency, food quality of wax moth (*Galleria mellonella*) maggots and symbionts of the microbiome”; “Human socioeconomic status, immune function and its morphological and physiological markers in young men and women”). See the list

of defended doctoral theses topics, advisers, consultants, and reviewers for the period from 2017 to 2022 in appendix (*3.2.5_Doctoral thesis defended*).

In total, 11 out of 12 persons who defended their doctoral theses during the reporting period are currently working in various scientific or higher education institutions in Latvia or abroad and are continuing the research started within the framework of their doctoral theses (see appendix *3.1.3.Employment and scientific indicators Doctors degree*), that approves of the high quality of education provided in DU DSP "Biology". The doctors of biological sciences educated at DU contribute to the increase of scientific capacity in the field of biological science, thus making a significant contribution to the development of the national economy.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

To ensure the study process and conduct scientific research, doctoral students have access to more than 20 specialized offices and teaching or scientific research laboratories in the Institute of Life Sciences and Technologies (Department of Biotechnology, Department of Ecology, Department of Technologies (including the Center for Innovative Microscopy), Department of Biosystematics (including see Study and Research Center "Ilgas"), and Department of Applied Chemistry), Faculty of Natural Sciences and Mathematics (Department of Anatomy and Physiology, Department of Environmental Science and Chemistry), as well as DU Agency "Latvian Institute of Hydroecology". See the most important equipment available in scientific and teaching laboratories in appendix (*2.3.2.Infrastructure and un material and technical provision*). The field research equipment of DU Institute of Life Sciences and Technologies and Latvian Institute of Hydroecology is available for students whose doctoral theses elaboration requires the implementation of field research. To ensure the implementation of the DSP "Biology", the shared infrastructure of DU is also used (for more detailed information, see sections 2.3.2 and 2.3.3 of the report).

Unique infrastructure created by DU in the branch, which provides both an appropriate environment for research and the study process (Study and research center "Ilgas", clean rooms with an appropriate microclimate and laboratories with up-to-date equipment in the Institute of Life Sciences and Technologies) and allows for interdisciplinary research, solving non-standard tasks and developing technologies for the needs of industry and society as a whole (electron, laser, atomic force, etc. microscopy, genetic material analysis kits, aquaculture laboratory, mobile laboratory, field research equipment, equipment sets for research in the field of parasitology and histology, etc.).

During the reporting period, DU has significantly developed its international recognition by integrating into several international scientific networks related to living natural sciences. Since 2021, DU has been admitted as an associate member to CETAF (Consortium of European Taxonomic facilities)[1] and GBIF (Global Biodiversity Information Facility)[2] international networks.

These networks open up wider opportunities for DU researchers and students to access scientific collections and databases in Europe and elsewhere in the world, as well as to develop DU's existing collections by attracting foreign specialists in the implementation of taxonomic audits. DU is a member of NACEE (Network of Aquaculture Centers in Central-Eastern Europe)[3] network, which was created with the aim of promoting aquaculture research and industry development in Central and Eastern Europe and becoming an integral part of the European research space. DU was one of initiators and participants of formation of international network for the study of the beetle fauna of the Philippine archipelago, PhilColNet (Philippine Coleopterological Network), established with the aim of promoting biodiversity research in the Philippine archipelago and ensuring the preservation and protection of the unique natural diversity.

Since 2022, DU has been accepted into the Baltic group of the European Organization for Nuclear Research (CERN)[4]. Although the study programmes included in the DU study direction "Life Sciences" are not directly related to the research carried out by CERN, participation in CERN opens wide opportunities for the research staff and students of the field of life sciences to get involved in interdisciplinary research carried out by CERN.

DSP "Biology" students have access to all services offered by the DU Library - the library's electronic catalog, ordering, reserving and renewing books online, automated user service, as well as access to electronic databases subscribed to DU, incl. Web of Science, Scopus, Science Direct, etc. (for more detailed information, see section 2.3.3 of the description of the field of study). Number of books in the field of biological sciences – 3487, incl. 923 in English, that is 26% of the books in the field of biology; in the field of environmental science – 1995, incl. 300 in English, that's 15% of the books in the field of environmental science". Students are also provided with opportunities to use the specialized scientific literature available in the scientific laboratories of the Institute of Life Sciences and Technologies of DU.

The scientific collections available at the Study and Research Center of DU "Ilgas", which are stored in modern collection rooms equipped with climate control systems, are an important resource for those studying in the doctoral study programme who are elaborating doctoral theses in botany and zoology. A significant part of the collections is digitized and available to specialists through the GBIF and PlutoF platforms. The Botany Laboratory maintains and replenishes the herbarium collection of international importance, which is registered in the international herbarium register Index Herbariorum (DAU)[5]. The herbarium contains more than 109,200 herbarium sheets: 83,000 herbarium sheets of seed plants, 1,600 herbarium sheets of gymnosperms, 21,000 herbarium items of fungi and lichens, 3,000 herbarium sheets of bryophytes and about 600 herbarium sheets of macrophytes.

The coleopterological research center houses the largest collection of beetles in the Baltics. In certain taxonomic groups (especially for the genera of beetles distributed in the tropical region), the largest collections in the world are stored here. Daugavpils University in cooperation with Warsaw University of Life Sciences publish scientific journal "Baltic Journal of Coleopterology" that is indexed in Scopus database[6]. In 2021, the journal was included in Scopus Q2 quartile, category *Insect Science*. Doctoral students of DSP "Biology" whose doctoral theses are being elaborated in the field of coleopterology regularly publish their papers in the journal.

[1] Consortium of European Taxonomic facilities. Pieejams: https://cetaf.org/three-new-members-and-a-lot-of-positive-energy-from-cetaf51/ [pārlūkots 28.02.2023]

[2] Global Biodiversity Information Facility. Pieejams: https://www.gbif.org/; https://www.gbif.org/publisher/16f88706-56f2-4e1e-8f39-74782cc1ae27 [pārlūkots 28.02.2023]

[3] Network of Aquaculture Centers in Central-Eastern Europe. Pieejams: https://www.nacee.eu/en/about-nacee/ [pārlūkots 28.02.2023]

[4] European Organization for Nuclear Research. Available: https://indico.cern.ch/category/10023/ [viewed 28.02.2023]

[5] Index Herbariorum. Available: http://sweetgum.nybg.org/science/ih/herbarium_list.php?NamOrganisationAcronym=DAU [viewed 28.02.2023]

[6] Baltic Journal of Coleopterology. Available: http://www.bjc.sggw.pl/ [viewed 28.02.2023]

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

Students of DU DSP "Biology" are offered a wide study and scientific base with all the resources necessary to ensure a successful study and scientific process for learning the study programme and developing doctoral theses (see sections 2.3.2 and 3.3.1 of the report). For students who need specific scientific equipment or analyzes for the development of their doctoral theses, solutions are sought in agreement with other scientific institutions as far as possible. In the previous reporting period, some students of DSP "Biology" were provided with access to specific scientific equipment at the Latvian State Institute of Forestry "Silava", the Institute of Biology of the Lithuanian Academy of Sciences, the University of Tartu, as well as the National Botanical Garden.

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

DSP “Biology” funding source is the state budget funding for studies (grant) and tuition fees. The calculation of costs for one student in the study field programs is performed in the DU Finance and Accounting Department, including the salary fund and the employer's State Social Insurance Mandatory Contributions, business trip, material, energy and inventory costs, purchase of books, equipment and investment costs, as well as social security costs for students. Calculation of costs per student of DSP “Biology” (full-time studies, 3 years, 120 CP) and information on the percentage distribution of funding see in the Table 3.3.3.1.

Table 3.3.3.1. Calculation of costs per student of DSP “Biology”

No.	Name	Sum (EUR)	% distribution
1	Salary fund per student	21974.92	74.8
2	Employer's SSIAI 23.59%	5183.88	17.7
3	Business trips and business trips costs per student	288.47	1.0
4	Services per student	287.46	1.0
5	Costs of materials, energy, water and inventory per student	1078.14	3.7
6	Cost of purchasing books and magazines per student	241.25	0.8
7	Equipment purchase and investment costs per student	304.75	1.0
	Total costs for 1 student per 1 study year	**29358.84**	**100.0**

The costs per student in the study programme in Latvian and in English will not differ. Daugavpils University does not have a minimum number of students for doctoral study programs.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The qualifications of the academic staff involved in DSP "Biology" fully meet the conditions of

program implementation, the content of the program and the requirements of regulatory acts. The knowledge of the national language of the academic staff employed in the implementation of the study program complies with the regulations on the amount of knowledge of the national language and the procedure for testing the national language proficiency for the performance of professional and official duties, respectively, they allow any course in the field of study to be fully taught in the national language. During the reporting period, academic staff members who were involved in advising or consulting several doctoral theses provided individual communication with doctoral students in English during the elaboration of the doctoral theses.

At the time of preparation of the accreditation report, a total of 15 lecturers are involved in the implementation of DSP "Biology" (see table 3.4.1.1.) no kuriem 14 pamatievēlēšanas vieta ir DU, savukārt 1 ir viesdocētājs from Latvian Institute of Hydroecology.

Table 3.4.1.1. Academic staff involved in DSP "Biology".

Position	**Number**	***% from total***	***Elected at DU***	***Visiting lecturer***
Professor	4	26	4	
Assoc. prof.	1	7	1	
Docent	1	7	1	
Leading researcher	6	40	5	1
Researcher	3	20	3	
Total	**15**	**100**	**14**	**1**

All 15 teaching staff involved in the implementation of the study programme are experts of Latvian Science Council in the field of biology. The list of teaching staff, information on the place of primary election of teaching staff, as well as the term of the expert's rights, can be found in the appendix *3.4.1.Statement of experts*.

According to the collected data, DU academic staff and visiting lecturers purposefully and regularly engage in various professional development activities in the fields corresponding to their scientific interests, both at DU and at foreign universities. In addition to the academic work at the university, the academic staff has practical experience in the implementation of branch-related projects and contractual works. This type of activity contributes to a comprehensive understanding of the specifics of the branch, thus ensuring a direct unity of theory and practice during the study process. The list with the experience of the academic staff involved in the implementation of the study programmes of the study direction “Life Sciences” in the implementation of branch projects is attached in the appendix (*2.4.3.Participation in projects*).

The directions of the research work of the academic staff involved in the study programme are focused on the successful implementation of the study programme and in most cases are related to the teacher’s specialization within the programme. Academic staff members prepare scientific articles published also in internationally peer-reviewed journals, participate in conferences and practical seminars, training, internships and various scientific events, publish textbooks and develop methodological materials, participate in international and national research projects.

Major publications by the academic staff members involved in DSP “Bioloģija” implementation are provided in appendix *2.4.4.List of scientific publications*.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

Since the previous accreditation of the study direction, there have been no changes in the composition of teaching staff in the provision of compulsory study courses and specialized elective courses. The composition of the teaching staff has changed only in connection with student matriculation and ex-matriculation, and the supervisors of doctoral theses involved in the implementation of the study program have also changed accordingly. At the time of preparation of the progress report, the implementation of DSP "Biology" is ensured by a total of 15 teaching staff.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

The academic staff involved in the implementation of DSP “Biology” in the period from 2017-2022 have published a total of 290 scientific publications indexed in Scopus or WoS databases. Of these, a large number are top-ranked publications published in Q1 or Q2 quartile journals. During the reporting period, academic staff involved in DSP “Biology” published the results of their scientific research in the following publications of the Q1 quartile: *Journal of Helminthology*, *Diversity*, *Forests* etc. A significant part of the scientific articles developed by the academic staff of the DSP “Biology” have been published in close cooperation with the students of the DSP “Biology”.

Major publications by the academic staff members involved in DSP “Bioloģija” implementation are provided in appendix *2.4.4.List of scientific publications*. All 15 academic staff members involved in the implementation of the study programme are LCS experts. The list of the academic staff members, as well as information on the place of their primary election, scientific branches of expertise and the term of rights in Latvian Council of Science are provided in appendix *3.4.1.Statement of eksperts.*

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding.

Provide information on the reporting period (if applicable).

The scientists involved in the implementation of DU study direction “Life Sciences” incl. DSP “Biology”, actively cooperate with scientists from other countries in joint research projects, including Horizon 2020, and also use the infrastructure offered by the cooperation institutions to conduct specific research. There is an international atmosphere in the university’s scientific environment, Daugavpils scientists have entered the international circulation and, together with scientists from other countries, participate in the development of world science. During the reporting period, the academic staff members involved in the implementation of DSP “Biology” have participated in the implementation of 35 scientific projects and contractual works.

Information on the involvement of the academic staff implementing DSP “Biology” in research projects in the period 2017 – 2022 see in Table 3.4.4.1.

3.4.4.1. tabula. ***DSP “Biology” academic staff involved***

No.	Project or research contractual work title	Project or research contractual work execution period	Project or research contractual work staff from DSP “Biology”	Project financing (DU par tin the project)
1.	Horizon 2020 programme project “Bringing Excellence to Transformative Socially Engaged Research in Life Sciences through Integrated Digital Centers (BETTER Life)”	01.09.2022.-31.08.2025.	Project coordinator at DU, main executor A. Škute	166 875 EUR
2.	LCS project “Spatial distribution of black flycatcher (Ficedula hypoleuca) nests in relation to predator communities, nest defense, offspring survival and female promiscuity”.	01.01.2023.-31.12.2025.	Project manager I. Krams	300 000 EUR
3.	LCS project “'A socio-ecological assessment of wetland restoration and reintroduction programs aimed at improving the European bog turtle and its associated biodiversity: a pan-European approach.''	01.02.2022.-31.01.2025.	Project manager A. Škute	209 330 EUR
4.	Scientific study "Evaluation of the performance characteristics of pedestrian paths with chopped wood coverings in the Langervalde forest massif"	11.03.2022.-15.12.2026.	Project main executor A. Barševskis	50 284 EUR

5.	LVM commissioned contract work "Development of a reconstruction plan for the Skriveri Arboretum”	12.08.2022.-30.07.2023.	Contractual work main executors P. Evarts – Bunders, U. Valainis	45 980 EUR
6.	Horizon 2020 programme project “OPtimal strategies to retAIN and re-use water and nutrients in small agricultural catchments across different soil-climatic regions in Europe (OPTAIN)”	01.09.2020.-31.08.2025.	Project coordinator at DU, main executor A. Škute, izpildītājs J. Soms	152 343 EUR
7.	LIFE project “Threatened species in Latvia: improved knowledge, capacity, data and awareness” **(**LIFE FOR SPECIES)	01.12.2020.-31.12.2024.	Project executor M. Balalaikins, U. Valainis, P. Evarts-Bunders	361 378 EUR
8.	LIFE Integrated Project: Optimising the Governance and Management of the Natura 2000 Protected Areas Network in Latvia (LATVIANATURE)	01.08.2020.-31.12.2028.	Project executors M. Balalaikins, U. Valainis	411 557 EUR
9.	LCS project “Successional and spatial patterns of mosses and lichens in deciduous forests”	01.08.2020.-31.12.2028.	Project manager A. Mežaka	299 760 EUR
10.	LCS project “Ecological and socioeconomic thresholds as a basis for defining adaptive management triggers in Latvian pond aquaculture”	01.01.2022.-31.12.2024.	Project manager A. Škute	299 999 EUR
11.	LCS project “Biotic and abiotic environmental factors causing ecological trap processes in forest bird communities”	01.01.2022.-31.12.2024.	Project manager T. Krama	299 999 EUR
12.	VIAA postdoctoral research project "Dynamics of epiphyte metapopulations in boreonemoral forest landscape”	01.03.2020.-28.02.2023.	Project manager A. Mežaka	133 805 EUR
13.	DAP funded contract work "Monitoring and research of invertebrates, amphibians and reptiles in the nature reserve "Lubāna mitrājs", Gauja national park and Ķemeri national park”	20.04.2020.-31.03.2022.	Main executors M. Balalaikins, U. Valainis	47 475 EUR

14.	LVAF project “Development of recommendations for the collection and analysis of data on the presence of microplastic pollution in fresh waters with different degrees of protection and pollution”	15.08.2019.-31.12.2020.	Project manager I. Dimante - Deimantoviča	28 932 EUR
15.	LCS project “A paleo-ecotoxicology approach to determine the effects of plastic particles on the functional and structural diversity of the freshwater keystone crustacean group Cladocera”	01.12.2019.-30.11.2021.	Project manager I. Dimante - Deimantoviča	131 119 EUR
16.	DAP funded contract work "Invertebrate Background and Invasive Invertebrate Monitoring”	01.06.2020.-31.03.2023.	Main executors M. Balalaikins, U. Valainis	233 751 EUR
17.	Contract work financed by Daugavpils city municipality "On the outsourcing of certified experts of wetland species and habitats for the study of the ecosystem and biological diversity of Daugavpils and Anīkšči wetlands, development and monitoring of a joint action plan”	19.01.2021.-31.08.2022.	Main executors U. Valainis, M. Balalaikins	25 900 EUR
18.	DAP funded contract work "Development of a nature protection plan for a nature reserve "Tosmare"”	06.09.2021.-22.10.2022.	Main executors U. Valainis, M. Balalaikins	38 998 EUR
19.	LVM commissioned contract work "Pilot study of the naked roundleaf Odontoschisma denudatum (Nees) Dum. for the assessment of the population status in North Kurzeme and in the lands owned by AS "Latvijas valsts meži" "	15.06.2021.-31.12.2021.	Main executor A. Mežaka	7 322 EUR
20.	LVM commissioned contract work "Research work in biology / ecology on dižkoskosnost deposits"	14.07.2020.-30.11.2020.	Main executor M. Balalaikins	3630 EUR

21.	DAP financed contract work "Updating the methodology of monitoring invertebrates in Natura 2000 territories”	01.07.2020.-31.10.2020.	Main executor M. Balalaikins	6 098 EUR
22.	LCS project “Relationship between avian haematological parameters, blood microbiome, blood parasite infections and fitness under ecological traps”	01.12.2020.-31.12.2021.	Project manager T. Krama	100 389 EUR
23.	MAF project “Occurrence, distribution corridors and distribution points in the forest landscape of Latvia”	14.06.2019.-30.12.2019.	Main executor M. Balalaikins	7 698 EUR
24.	Contractual work on the research of beetles in agrocenoses funded by the Institute of Agrarian Economics.	01.06.2019.-07.10.2019.	Main executor M. Balalaikins	4 840 EUR
25.	DAP funded contract work “Development of a nature protection plan for the landscape area “Nīcgales meži"”	22.12.2017.-21.06.2019.	Main executors U. Valainis, M. Balalaikins	28 554 EUR
26.	DAP funded contract work “Invertebrate background and invasive invertebrate monitorings”	21.05.2018.-31.03.2020.	Main executors M. Balalaikins, U. Valainis	153 545 EUR
27.	DAP funded contract work "Development of a nature protection plan for the nature resort “Ventas un Šķerveļa ieleja””	10.07.2018.-09.03.2020.	Main executors U. Valainis, M. Balalaikins	33 707 EUR
28.	DAP funded contract work "Development of a nature protection plan for the nature park "Riežupe"”	10.07.2018.-09.01.2020.	Main executors U. Valainis, M. Balalaikins	34 748 EUR
29.	DAP funded contract work "Development of a nature protection plan for the nature park "Numernes valnis"”	10.07.2018.-09.01.2020.	Main executors U. Valainis, M. Balalaikins	34 932 EUR

30.	Contractual work on the research of beetles in agrocenoses funded by the Institute of Agrarian Economics.	31.05.2018.-05.10.2018.	Main executor M. Balalaikins	4 840 EUR
31.	LCS project “Effects of habitat fragmentation on bird physiological parameters, aging, microbiome and decline in boreal forests”	02.11.2018.-01.12.2020.	Project manager T. Krama	199 964 EUR
32.	LCS project “How do personalities arise and why is there depression? Investigation of the physiological mechanisms and adaptive functions of phenotypic variation under conditions of sociality and predator stress”	10.07.2018.-09.07.2021.	Project manager I. Krams	270 000 EUR
33.	ES COSME project “TastyCheeseTour	01.04.2016.-30.06.2017.	Project coordinator at DU U. Valainis	27 996 EUR
34.	State research programme project “Biodiversity and its role among other ecosystem services, Freshwater ecosystem services and biodiversity”	01.10.2014.-31.12.2018.	Project manager N. Škute	80 000 EUR
35.	State research programme project “The impact of changes in social awareness on the sustainable provision of ecosystem services.”	01.09.2014.-31.12.2017.	Project coordinator at DU, main executor I. Kokina	36 558 EUR

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The cooperation of the academic staff of the study programme is diverse, deciding on activities related to the organization and management of the learning process; considering questions about the content of studies; when planning scientific events; cooperating in the research field (conducting joint research within projects, writing publications, participating in scientific conferences, etc.).

The content and structure of the courses are discussed at regular meetings of the academic staff, discussing how to maintain systemic approach as the basic principle of study course development within the study programme, how to improve the forms of organizing the learning process in order to facilitate the growth of students. Such discussions take place both collectively and individually.

Within the doctoral study programme, the need for cooperation among the academic staff is primarily determined by joint research and scientific cooperation. However, when creating a study programme, the needs of students come to the fore, while the interests of the academic staff are secondary. In the optimal variant, it is possible to harmonize the needs, interests and opportunities of all involved parties, as was observed in the implementation of DU DSP “Biology” during the reporting period.

Taking into account the planned changes in the implementation of doctoral study programmes in Latvia, which will be implemented on the basis of the conceptual report “On the implementation of a new doctoral study model in Latvia” (supported on June 25, 2020 by Cabinet of Ministers Order No. 345), also the doctoral study programmes implemented by DU, incl. DSP “Biology”, will undergo a gradual transition to the new doctoral model, which will allow students within the framework of the Doctoral School of DU to offer wider research and study opportunities to DU DSP “Biology”, as well as to expand cooperation within the framework of studies with the academic staff and students of doctoral schools provided by other Latvian and foreign universities.

In 2022/2023, a total of 15 academic staff members are involved in the implementation of the doctoral study programme “Biology”. At the time of submission of the accreditation report, a total of 24 students are studying in this programme.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	3.1.2.DSP Biology_Diploma and transcript_EN.zip	3.1.2.DSP Bioloģija_Diploms un akadēmiskā izziņa_LV.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	3.1.4.DSP Biology_Statistical data students_ENG.xlsx	3.1.4.DSP Bioloģija_Statistikas dati par studējošajiem_LV.xlsx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard		
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	3.2.1.DSP_Compliance of the biology doctoral programme with external regulations.docx	3.2.1.DSP Bioloģija doktora programmas atbilstība ārējam normatīvajam regulējumam.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	3.2.1.DSP Biology_study course mapping_EN.docx	3.2.1.DSP Bioloģija_studiju kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	3.2.1.DSP Biology_Study plan_EN.xlsx	3.2.1.DSP Bioloģija_Studiju_plans_LV.xlsx
Descriptions of the study courses/ modules	3.2.1.DSP Biology_Study course descriptions_EN.zip	3.2.1.DSP Bioloģija_Studiju kursu apraksti_LV.zip
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)	3.4.1.Statement of eksperts_EN.docx	3.4.1.Apliecinājums_LZP_eksperti_LV.edoc
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Biology (45421)

Study field	*Wildlife Sciences*
ProcedureStudyProgram.Name	*Biology*
Education classification code	*45421*
Type of the study programme	*Academic master study programme*
Name of the study programme director	*Inese*
Surname of the study programme director	*Kokina*
E-mail of the study programme director	*inese.kokina@du.lv*
Title of the study programme director	*Dr.biol., profesore*
Phone of the study programme director	
Goal of the study programme	*To prepare high level specialists in the field of biology with deep theoretical knowledge and practical skills, capable of making independent decisions and conducting creative scientific research.*
Tasks of the study programme	*1. to provide in-depth knowledge in general biological and specialization (sub-programmes "Biodiversity and its protection", "Aquaculture", "Nature recreation") study courses;* *2. develop data collection, processing, and application skills and abilities in research work in natural sciences;* *3. develop practical skills in working with laboratory and field research equipment that meet modern requirements;* *4. to deepen the understanding of the ethical principles of biological research;* *5. enhance the competitiveness of Master students, both when later studying for a doctorate and when working in educational, research, environmental management or nature protection institutions.*

Results of the study programme	*Knowledge:* *1. Demonstrates theoretical knowledge in the field of biological science, critical understanding of concepts, theories, and regularities;* *2. Understand the most important knowledge of biology in an interdisciplinary context;* *3. Knows basic principles of scientific research in the field of biology.* *Skills:* *4. Knows how to independently select, critically evaluate and analyze the obtained information;* *5. Knows how to discuss current issues in the field of biological science with other specialists and representatives of related professions;* *6. Knows how to independently conduct scientific research in the branches of biological science.* *Competences:* *7. Able to take initiative and responsibility, working individually or in a team;* *8. Able to integrate the knowledge of fields related to biology in the process of self-development and self-improvement in the perspective of the future professional career;* *9. Able to evaluate the influence of one's competence and social environment.*
Final examination upon the completion of the study programme	*Master's thesis*

Study programme forms

Full time studies - 2 years - latvian

Study type and form	*Full time studies*
Duration in full years	*2*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*80*
Admission requirements (in English)	*Bachelor degree in biology or medicine or environmental science, or 2nd level higher professional education in the sphere of biology, medicine, pharmacy or veterinary medicine.*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Master of Natural Sciences in Biology*
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Daugavpils	DAUGAVPILS	VIENĪBAS IELA 13, DAUGAVPILS, LV-5401

Full time studies - 2 years - english

Study type and form	*Full time studies*
Duration in full years	*2*

Duration in month	*0*
Language	*english*
Amount (CP)	*80*
Admission requirements (in English)	*Bachelor degree in biology or medicine or environmental science, or 2nd level higher professional education in the sphere of biology, medicine, pharmacy or veterinary medicine. For studies in English: English language skills at least B2 level.*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Master of Natural Sciences in Biology*
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Daugavpils	DAUGAVPILS	VIENĪBAS IELA 13, DAUGAVPILS, LV-5401

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

AMSP "Biology" was licensed on 19.05.2021. (license number 04041-103). Since the study programme license was issued, no changes have been made to the parameters of the study programme. Changes are not planned within the evaluation procedure of the study direction either.

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

AMSP "Biology" is was created in accordance with the requirements of the Act on HEI of Latvia and provides opportunities for the acquisition of academic education in biology in compliance with the regulations on state academic education standard "Regulations on the national standard of academic education (13.05.2014. regulations No. 240 – *available in Latvian*). AMSP "Biology" is a Master's level programme within DU study direction "Life Sciences" that grants students the acquisition of theoretical knowledge and research skills in the branch of biology, achieving the study outcomes determined in the study programme, which correspond to the level 7 knowledge, skills and competence of the European qualification framework determined in the Latvian education classification.

Taking into account that bachelor's, Master's, and doctoral study programmes are offered to those studying in DU study direction "Life Sciences", the implementation of AMSP "Biology" is an essential prerequisite for ensuring continuity between study programmes of different levels provided within the study direction. For the further professional development of specialists after graduating from bachelor's level study programmes, it is necessary to prepare academically educated, globally competitive Masters of biology, capable of independently expanding and deepening knowledge and carrying out scientific work in one of the sub-branches of biology or working in a sector of the national economy.

The aim of the study programme is to prepare high level specialists in the field of biology with deep theoretical knowledge and practical skills, capable of making independent decisions and conducting creative scientific research.

Programme code 45421 reflects the status and content of the programme, in accordance with the requirements set out in the "Regulations on Latvian Education Classification" (MK 13.06.2017.

Regulations No. 322). The first digits of the code 45 denote academic education (master degree), which can be implemented after bachelor or professional bachelor degree. The second part of the code corresponds to the thematic field of education (42 – Life Sciences) and the group of educational programmes (421 – Biology).

Enrollment in the study programme takes place in accordance with the "Daugavpils University admission rules for full-time and part-time higher level studies"[1], which are approved annually by the DU Senate. Admission requirements: Bachelor degree in biology or medicine or environmental science, or 2nd level higher professional education in the sphere of biology, medicine, pharmacy or veterinary medicine. Participation in the competition is with the average grade of the final/state exams.

Admission requirements for students studying in English:

-Academic bachelor's degree in biology or chemistry, or environmental science, or health care;

- Level 2 higher professional education in biology or environmental science, or health care, or pharmacy, or veterinary medicine; or bachelor's 2nd level education in related fields;

- Participates in the competition with the average grade of the final/national exams

- a document certifying knowledge of the English language at least at the B2 level.

Realization of the study program in English will allow to increase the number of foreign students in the program. Taking into account that currently there is a lot of interest in AMSP "Biology" from foreign students from the Philippines, Indonesia, Lesotho, etc. countries, it was also decided to implement the bachelor's study program in English in order to ensure the opportunity for foreign students to also learn the bachelor's level study program.

The name of AMSP "Biology", the degree to be obtained, aims and objectives, student admission requirements are interconnected. Graduates of AMSP "Biology", within the programme duration of two years of studies, obtain a Master's degree in biology with an in-depth specialization in one of the sub-programmes offered in the Master's study programme ("Biodiversity and its protection", "Aquaculture", and "Nature recreation").

On the study programme acquisition diploma and its appendix sample in accordance with the Cabinet of Ministers regulations of 16.04.2013. No. 202 as well as agreement on studies sample in accordance with the Cabinet of Ministers regulations of 23.01.2007. No. 70 see (*3.1.2.AMSP Biology_Diploma and supplement* and *3.1.2.AMSP Biology_Agreement on studies*).

[1] Daugavpils University admission rules for full-time and part-time higher level studies (international students). Available: https://du.lv/en/studies/admission/ [viewed 28.02.2023]

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

The need for AMSP "Biology" and its further development from the point of view of Latvian national interests is determined by the need to prepare academically educated specialists for state and local government institutions, services and their structural units of the Republic of Latvia, which are related to solving nature protection issues and managing natural resources. Specialists of this

profile are also needed by scientific research institutes and companies and employers of the private economic sector, which are directly involved in conducting biological research or whose business field is related to the use of natural resources. Biodiversity research and conservation, environmental protection, sustainable use of natural resources, food production and quality, nanobiotechnologies and nanosafety are development priorities of the European Union (EU) (European Commission's priorities for 2019-2024).[1]

The economic and social rationale of the study programmes (including AMSP "Biology") included in the study direction "Life Sciences", as well as their development perspectives result from the economic demand forecasts specified in the following strategic planning documents:

- Educational development guidelines for 2021-2027;

- Latvia's sustainable development strategy until 2030;

- Latvia's National Development Plan for 2021-2027;

- National concept of Latvian higher education and HEI development – Future HEI 2030;

- Science, technology development and innovation guidelines for 2021 - 2027;

- Latvia's Smart Specialization Strategy.

High-quality studies and opportunities for graduates on the labor market are the main criteria by which future students choose a university to study at. The latest labor market forecasts show that in the next five years, specialists in engineering and high technologies, as well as natural sciences (including the field of biology), will be especially in demand on the labor market. In the 2020 report of the Ministry of Economy on the development of the national economy of Latvia, a shortage of highly qualified specialists in natural sciences, ICT and engineering was prognosticated. It is predicted that the shortage of qualified specialists in these sectors could exceed 17 thousand by 2025.

In accordance with the achievable indicators defined in the Latvian National Development Plan for 2021-2027, the target value for the proportion of graduates in the fields of natural sciences, mathematics and information technology from the total number of graduates in higher education is 12%, which will ensure the demand for natural sciences in the coming years, incl. for study programmes in the field of biology. The demand for graduates of Master's and doctoral study programmes could also be promoted by the achievable indicator defined in the Latvian National Development Plan for 2021-2027 regarding the increase in the proportion of academic staff employed full-time in higher education institutions (ISCED 5-8).

Regarding the employment of the currently implemented DU AMSP "Biology" graduates, no data are available for the reporting period, as the study programme was licensed in 2021, while the first-year students were enrolled in 2021/2022 and will graduate from the programme in 2022/2023.

[1] European Commission's priorities for 2019-2024. Available: https://www.consilium.europa.eu/media/39914/a-new-strategic-agenda-2019-2024.pdf [viewed 28.02.2023]

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and

languages.

At the time of submission of the accreditation report, ABSP “Biology” has a total of 17 (8 students in the 1st year of studies and 9 students in the 2nd year), while in the period from 2017 to 202 the total number of students enrolled in the AMSP “Biology” reached 79 students (the number of students also includes data on the students of the AMSP “Nature Recreation” consolidated during the reporting period). In the reporting period, a total of 44 students graduated from the study programme (the number of students also includes those 27 students who in the reporting period studied in the consolidated AMSP “Nature Recreation”).

Basically, all students of AMSP “Biology” study for state budget funds (except for one foreign student, who studied for personal funds (*2.5.3.Statistics on foreign students and lecturers*). The statistics of the number of students does not include foreign students who have studied at AMSP “Biology” as part of various mobility programs and have been matriculated for a specific study period. During the reporting period, 28 students studied at ABSP “Biology” within the Erasmus program – 3 student from Lesoto, 2 student from Kenya, 15 student from Philippines, as well as 8 student from Indonesia. Statistics of the number of students enrolled within the mobility programs for the reporting period are summarized in the appendix (*2.5.3.Incoming and outgoing mobility DU students*).

According to the statistics of dropouts (see appendix *3.1.4.AMSP Biology_Statistical data students*), part of the students who were enrolled in the study programme have not graduated from it. The main reasons for terminating studies are academic failure, moving abroad, financial difficulties, as well as, of course, an ill-considered, inappropriate choice of the study programme. The dropout statistics of DU AMSP “Biology” students reflect the general trends in the field of natural sciences in Latvia.

AMSP “Biology” is implemented only in the form of full-time studies. In the previous accreditation period, the study programme was implemented in Latvian for those studying for state budget funds, while for foreign students studying for a fee, study courses were provided in English according to an individual schedule. In the framework of mobility programs, the selected study courses for matriculated students are provided in English.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the

relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The content of AMSP "Biology" is determined by the aim and objectives of the study programme, which are coordinated with the new trends in the education system in the European Union, with the requirements of related regulations of the Cabinet of Ministers, the DU Constitution, and with the priority research directions of Daugavpils University. The content of AMSP "Biology" is designed with the aim of providing higher-level theoretical and practical knowledge, as well as research work and scientific analysis skills, preparing students for further doctoral studies or professional activity. The content of the Master's study programme includes the guidelines, principles and scientific methodology of biology and its sub-branches, as well as solutions to its current problems in an interdisciplinary context.

Taking into account that it is planned to admit students with different previously acquired education, students are offered the opportunity to attend the necessary study courses (topics) as listeners, learning the necessary content.

Parameters characterizing the study programme

The aim of the study programme: to prepare high-level specialists in the field of biology with deep theoretical knowledge and practical skills, capable of making independent decisions and conducting creative scientific research.

Objectives of the study programme: the content of AMSP "Biology" ensures the achievement of the study outcomes that envisage the acquisition of in-depth theoretical knowledge and the development of research skills and abilities in the chosen sub-field of biology. In the course of acquisition of AMSP "Biology", students supplement and deepen their existing and acquire new knowledge, increase their scientific specialization and expand their skills and competences in the field of biology. Study outcomes are formulated both for the entire study programme and for each study course.

Knowledge: The programme provides in-depth learning of theoretical and practical knowledge in biology and its sub-branches. As a result of successful completion of the study programme and mastering the content of the study courses, the students will demonstrate an in-depth understanding of the regularities of the functioning and development of biological systems at all levels of the life organization, obtaining a specialization in one of the sub-programmes offered in the Master's study programme ("Biodiversity and its protection", "Aquaculture", "Nature recreation"). During the study programme acquisition, students will gain in-depth knowledge:

1. Demonstrate theoretical knowledge in the field of biological science, critical understanding of concepts, theories, and regularities;
2. Understand the most important knowledge of biology in an interdisciplinary context;
3. Knows basic principles of scientific research in the field of biology.

Skills: In the course of the programme acquisition, students obtain in-depth academic and professional competences, which are reflected in their skills. The execution of the study programme and learning of individual study courses are based on the existing social, communicative, and educational skills acquired in the bachelor study programme. By participating in the practical and laboratory work provided for in the study programme, as well as conducting research under the

guidance of academic staff and summarizing their results in Master's theses, students, applying specific research methods, acquire a narrower specialization in the field of research, which results in the ability to independently plan and implement research, perform statistical analysis of the obtained data analysis, draw conclusions, present and publicly defend them. The acquired skills ensure the compliance of the students as young highly qualified specialists with the requirements of the labor market in the specific sector and their future ability as employees to work in the research, management or organizational field in biology and research-related state institutions or private companies. During the study programme, students:

4. Knows how to independently select, critically evaluate and analyze the obtained information;
5. Knows how to discuss current issues in the field of biological science with other specialists and representatives of related professions;
6. Knows how to independently conduct scientific research in the branches of biological science.

Competences: Students' successful academic and research activity in fulfilling the requirements of the Master's study programme is not possible without cooperation with the academic staff involved in the implementation of the programme and fellow students, as well as without delving into the issues of sustainable rational use of biological resources. Thus, general human attitudes and academic competences are strengthened, at the same time competences related to biological science are expanded, creating awareness and understanding of nature protection and preservation. Competences to be acquired by students within the study programme:

7. Able to take initiative and responsibility, working individually or in a team;
8. Able to integrate the knowledge of fields related to biology in the process of self-development and self-improvement in the perspective of the future professional career;
9. Aable to evaluate the influence of one's competence and social environment.

Study programme amount (CP): 80 CP

Study programme duration: 2 years

Programme parts and their amount:

- compulsory courses of mastering theoretical ideas (36 CP) - *Current problems in biology (8 CP)*; *Methodology of research in biology (16 CP); Applied biology and bioeconomics (12 CP);*
- theoretical idea approbation (24 CP) – study courses depend on the selected sub-programme:
- sub-programme "Aquacultures": *Aquaculture technology (24 CP);*
- sub-programme "Biodiversity and its research": *Biodiversity research practice (24 CP);*
- sub-programme "Nature recreation": *Environment interpretation and demonstrations (6CP); Nature recreation strategy (6 CP); Nature therapy (3 CP); Project preparation and management (3CP).*
- Elaboration of Master's thesis (20 CP)

Amount of contact hours (%): 1 credit point corresponds to 40 academic hours, 16 hours whereof are contact hours, which is 40% of the expected amount.

Compliance with the requirements of the Act on Environmental Protection and Civil Defense and Disaster Management: the study programme includes the study courses "Civil Defense" (1 CP) and "Environmental Protection" (1 CP) (for students who have not studied civil and environment protection in bachelor studies.

Degree and/or qualification to obtain: Master science in biology.

Opportunities of continuing studies: continuing studies in DU doctoral study programmes.

Basic principles and procedure of acquisition and assessment of the study programme: the

following principles are applied in the acquisition and assessment of the study programme:

- the principle of openness;
- principle of obligation;
- the principle of assessment review options;
- the principle of diversity of the types of tests used

The principles and procedures for the assessment of the study outcomes are stated in the "Regulations on studies at Daugavpils University"[1]. A more detailed description of the assessment is reflected in the credit requirements of each individual study course. Study outcomes are assessed on a 10-point scale or with a "pass/fail" rating.

Appendices of the report summarize the study programme parameters testifying to the compliance of the study programme to the state education standard (*3.2.1.AMSP Biology_Compliance with national education standard*). ABSP "Biology" study programme curriculum is provided in appendix (*3.2.1.AMSP Biology_Study plan*), whereas study programme course descriptions are supplied in appendix (*3.2.1_AMSP Biology study course descriptions*). Study course mapping for achieving the study programme outcomes see in appendix (*3.2.1.AMSP Biology_Study course mapping*).

[1] Regulations on studies at Daugavpils University. Available: https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf [viewed 28.02.2023]

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

After completing the study programme, students with a previously obtained appropriate academic bachelor degree or appropriate professional higher education in the field of biological sciences obtain an academic Master of science degree in biology. The awarding of the Master's degree is based on the achievements and findings of the field of biological science confirmed by the content of the study programme.

In the process of developing the study programme in 2021, an evaluation of the content of the study programmes implemented in the "Life Sciences" study direction of DU, as well as the available resources and provision of DU, was carried out. Based on the recommendations of experts of the branch involved in the development of the programme (including representatives of employers), a new study content of AMSP "Biology" was developed. The thematic and calendar structure of the newly created study programme provides a wide range of compulsory optional courses that meet the interests of the students and the scientific specialization of the academic staff. The courses included in the approbation section of theoretical knowledge provide opportunities for students to specialize in three sub-programmes: "Biodiversity and its research", "Nature recreation", and "Aquaculture", learning in depth the most important applicable aspects of the theoretical knowledge included in the study programme. Thus, students get more opportunities to adapt to the demands and needs of the labor market. The structure of the programme is also focused on the development of students'skills to independently carry out scientific work and to

participate in the research process, which is necessary for the successful development of Master's thesis.

When developing the content of the new study programme, the development priorities of the European Union (EU) were taken into account (European Commission's priorities for 2019-2024), as well as special attention was paid to EU long-term planning documents closely related to the field of biology (EU Biodiversity Strategy 2030, EU Long-term Climate Strategy 2050, etc.), in which the integration of the defined goals and objectives into the most important sectoral policies will in the future determine an increase in the demand for highly qualified specialists in the field of biology.

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The study programme is implemented using various study forms, formal and informal education methods and methodological techniques, as well as e-studies for organizing students' independent work. The study programme uses various study methods of contact classes, incl. lectures, practical lessons, consultations, individual and group work, discussions. Along with traditional forms of work, interactive study methods are also practiced: field classes, analysis of audiovisual materials, practical workshops, interactive lectures by experienced professionals, guest lectures by foreign specialists, etc. Credibility in the acquisition of theoretical and practical knowledge is ensured by the use of modern technical equipment. Requirements and methods are chosen according to the content and specificity of the study courses, as well as the organization of the study process.

The lectures focus on the review of the basic problems of the content of the study courses. Lecturers use video projectors and interactive whiteboards in lectures. The use of video projectors and interactive whiteboards in lectures should be considered the most optimal, because the electronic versions of the lecture material allow, if necessary, to quickly modify and improve the material presented in the lectures.

Laboratory work takes place in the laboratories of the Institute of Life Sciences and Technologies of DU, in the laboratories of the Department of Anatomy and Physiology of the Faculty of Life Sciences and Mathematics, in the laboratories of the Department of Environmental Science and Chemistry. The laboratories are equipped with equipment that fully meets modern requirements, such as laser scanning microscopes, electron microscopes, gene analyzer, flow cytometer, gene amplifier, various spectrophotometers for DNA, RNA, protein quantification, equipment for digital recording of gel photos, centrifuges, etc.

In the practical lessons, students implement the theoretical knowledge, skills and abilities acquired during the theoretical lessons in practice (in nature, in the laboratory, in the company, etc.). It gives an opportunity to apply theoretical knowledge in solving specific fundamental and applied biology problems.

Team (group) work is used mainly in seminar classes, analysing the mistakes made during the

discussion of problems (questions) and searching for possible solutions to problems (questions), as well as solving the tasks provided in field courses. Special attention is paid to the high-quality organization of students' independent work. Serious work is being done to prepare study materials in an electronic version, which would allow students to learn the study material independently. Continuation of this work is one of the study work priorities of the academic staff involved in the program.

Individual work is practiced relatively widely, because individual assignments allow the lecturer to firstly identify in time the questions that the students have not mastered with sufficient quality, and secondly, to a certain extent, solve the problems of class attendance.

The organization and implementation of the study process for those studying in English will be based on the same principle as for those studying in Latvian.

Much attention is paid to the independent work of students, which is focused on learning and analyzing scientific literature, obtaining and analyzing empirical research material, preparing reports and individual projects. The studies encourage independent approach on behalf of students, while providing the guidance and support of the instructor – the scope and content of the students' independent work, as well as its evaluation methods, are specified in the description of each study course.

Students' independent work includes diverse activities:

- studying sources and preparing for seminar classes;
- participation in DU scientific conferences;
- development and presentation of projects, reports;
- visiting organizations and companies;
- information gathering, database research.

Owing to the long-term and successful cooperation with entrepreneurs in the region, students have the opportunity to visit various organizations, observe and familiarize themselves with business processes. Guest lectures provided by representatives of regional companies, foreign guest speakers, etc. are also involved on regular basis. As part of the lectures of foreign guest lecturers, students are provided with the opportunity to get acquainted with the world experience in the relevant field of study, as well as to improve their foreign language skills in the later stages of their studies, since classes are held in a foreign language or bilingually.

AMSP "Biology" adheres to the principles determined by the Standards and guidelines for quality assurance in the European higher education space adopted in 2015. The study programme is implemented in such a way as to encourage students to actively engage in the development of the study process, and the evaluation of student achievements corresponds to the approach defined in the guidelines. The guidelines of the mentioned standard state that student-centered learning and teaching play an important stimulating role in student motivation, self-reflection, and engagement in the learning process. This is manifested in creating and implementing thoroughly planned study programmes and the evaluation of the study outcomes.

AMSP "Biology" was created and is being realized, respecting the diversity of students and their needs, creating more suitable teaching approaches. During the implementation of the programme, students are offered diverse teaching methods, incl. the possibility to master the learning material remotely, with the help of video materials, the possibility to receive consultations, etc., thus adapting the implementation of the program to the capabilities of the students. Therefore, the opportunity to acquire the study programme is also provided for those who for various reasons cannot attend classes on daily basis, for example, working students, mothers of infants, etc. At the same time, the students' skills are developed to work independently, but to ensure the guidance

and support of the teaching staff and by promoting mutual respect in the relationship between the student and the teaching staff. DU has appropriate procedures for examining and resolving student complaints.

In the course of the study programme implementation, all basic principles of student-centered education are observed:

- constant reflection,
- individual approach to students, avoiding a 'one-size-fits-all' solution,
- it is taken into account that students have different learning styles, different requirements, interests, experience and previous knowledge,
- students' knowledge, skills and abilities are evaluated not only by the academic staff, but there should also be self-control over their studies,
- students are offered an opportunity to learn by themselves,
- continuous cooperation between students and academic staff.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

Students choose the topics of their bachelor theses by consulting their scientific advisers who are specialists in their field and have extensive work experience. The topics of the term papers and the scientific advisers of the papers are approved at the meeting of the study direction "Life Sciences" Council, where one of the assessment criteria is relevance in the respective branch. Scientific advisers help to choose the most relevant topics in the branch and coordinate the further advancement of a specific topic for consideration by the study direction council. The topics of master theses are coordinated by the study direction council and approved by the Faculty of Natural Sciences and Mathematics council.

The topics of Master's theses are basically related to the areas of scientific research of the teaching staff involved in the realization of the study programme, as well as to the directions of specialization of the study sub-programmes offered in the Master's study programme. The topics of Master's theses developed during the reporting period correspond to the current affairs of modern biological science and have been related to various sub-fields of biology: biotechnology (e.g. "DNA synthesis and fragmentation in the organs of wheat (*Triticum aestivum* (L.)) sprouts in different photoperiods"; "MicroRNAs associated with mlo resistance determination of various barley varieties under the influence of nanoparticle stress"; "Effects of various nanoparticles on common wheat *Triticum aestivum* (L.) plants, the course and intensity of photosynthesis"), parasitology (e.g. "Composition and ecology of the helminth fauna of the yellow-necked vole *Apodemus flavicollis* (Melchior, 1930) in the Gauja National Park"), ecology (e.g. "Functional characteristics of mosses in black alder stands of different ages"), ethology (e.g. "Effects of predator stress on the development, phenotype and survival of the fruit fly *Drosophila melanogaster* Meigen. 1830"); "Predation stress of the fruit fly *Drosophila melanogaster* reaction proteomics"); histology (e.g. "Changes of some oxidative processes in roach (*Rutilus rutilus* L.) cells under the influence of elevated temperature"), taxonomy (e.g. "Revision of the fauna of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae) of the Mindanao Islands complex"; "The genus *Rhyparus* Westwood, 1843 (Coleoptera: Scarabaeidae: Aphodiinae) Review of the fauna of the Philippines"), protection of biological diversity (e.g. "Changes in the occurrence of forest sicista in owl flocks – or an indicator of population changes"; "Incidence of flower spikes, distribution corridors and distribution hotspots in the forest landscape in Latvia"), in nature recreation (e.g. "Solutions and implementation of nature exploration trail in the territory of Silene nature park"; "Evaluation of the existing and planned tourism infrastructure of the nature park "Numernes valnis", for people of different ages and physical exercise tolerance, for the purposes of sustainable development of nature recreation") human physiology (e.g. "Dosed walking as a means of physical recreation for body composition and health improving indicators, its emotional-restorative effect"). See the list of topics and evaluations of defended master theses for the period from 2017 to 2022 in the appendix ("Other Annexes", *3.2.6.AMSP Biology_Master theses defended*).

DU has developed and follows the "Procedure for submission of final theses for plagiarism control at Daugavpils University"[1], which provides for mandatory submission and storage of electronic versions of final theses in the Information System of DU and provides an opportunity to compare students' final theses with the set of theses defended in previous years.

Each Master's thesis is evaluated by one reviewer, who assesses the technical presentation of the thesis, compliance with the Master's level, the structure and content of the thesis, incl. the topicality of the work. During the defense of the thesis, the final examination board evaluates the Master's thesis taking into account the relevance of the work, presentation skills and knowledge, answers to questions, justification of one's opinion, and the quality and use of the demonstrated material during the defense. Additional points are awarded for presentations at conferences, publications in conference theses collections or scientific periodicals. The final evaluation is made up of the average evaluation mark of the reviewer and the commission.

Assessment in the study programme is carried out based on the following principles:

- the evaluation criteria are clear and understandable, are previously published and available,

- evaluators are familiar with testing and examination methods,

- assessment gives students the opportunity to show to what extent they have achieved the expected learning outcomes;

- students receive feedback, which, if necessary, provides advice related to the learning process,

- assessment is consistent, fair, suitable for all students and is implemented in accordance with legislation and approved procedures,

- there is a procedure for examining student appeals.

[1] Procedure for submission of final theses for plagiarism control at Daugavpils University. Available: https://du.lv/wp-content/uploads/2022/09/Procedure-of-thesis-submission-for-plagiarism-control.pdf [viewed 28.02.2023]

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The implementation of the AMSP “Biology” is carried out both using the shared infrastructure of DU (for more detailed information, see section 2.3.2), as well as the specialized laboratories corresponding to the specifics of a particular study course and the equipment available in them, provided by several structural units of DU: Institute of Life Sciences and Technologies (Department of Biotechnologies, Department of Biosystematics, Department of Ecology, DU Study and Research Center “Ilgas”, Department of Technologies, Department of Applied Chemistry), Faculty of Natural Sciences and Mathematics (Department of Anatomy and Physiology, Department of Chemistry and Geography), DU Agency “Latvian Institute of Hydroecology”. In order to provide field courses, as well as to conduct field research within the framework of studies and bachelor theses, field research equipment at the disposal of the specified DU structural units is also available to students.

AMSP “Biology” sub-programme “Aquacultures” implementation also involves DU agency “Latvian Institute of Hydroecology”, which offers students to use the institute’s scientific laboratories and equipment for the implementation of specialized research in hydroecology. The mobile complex of DU pond aquaculture scientific laboratories in Nagli is also available for those studying in the “Aquaculture” specialization.

AMSP "Biology" students have access to all services offered by the DU Library - the library's electronic catalog, ordering, reserving and renewing books online, automated user service, as well as access to electronic databases subscribed to DU, incl. Web of Science, Scopus, Science Direct, etc. (for more detailed information, see section 2.3.3 of the description of the field of study). Number of books in the field of biological sciences – 3487, incl. 923 in English, that is 26% of the books in the field of biology; in the field of environmental science – 1995, incl. 300 in English, that's 15% of the books in the field of environmental science". Students are also provided with opportunities to use the specialized scientific literature available in the scientific laboratories of the Institute of Life Sciences and Technologies of DU.

Upon the proposal of the instructor of the study courses, for the realization of individual study

courses or in cases where students choose specific topics of studies and bachelor theses, the director of the study programme can also agree with other scientific institutions (e.g. Latvian University of Biosciences and Technologies, Latvian State Forest Research Institute “Silava”, etc.) as to the opportunity of using the specific equipment available in the scientific laboratories, usually engaging the researchers of these institutions as consultants or supervisors.

The provision of the “Life Sciences” study direction, including infrastructure and equipment, guarantees a high quality study environment for high quality implementation of the study programme and the achievement of study outcomes for all studying in the study direction (including students with special needs). Students and academic staff have constant access to the Internet and the local DU network Internet connection, the e-study environment Moodle, as well as the possibility of using e-mail and teleconferences, various online platforms, e.g. ZOOM.

For detailed information on the infrastructure and material and technical provision available for the implementation of the study direction and corresponding study programmes, see appendix (*2.3.2.Infrastructure and un material and technical provision*).

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

AMSP “Biology” funding source is the state budget funding for studies (grant) and tuition fees. The calculation of costs for one student in the study field programs is performed in the DU Finance and Accounting Department, including the salary fund and the employer's State Social Insurance Mandatory Contributions, business trip, material, energy and inventory costs, purchase of books, equipment and investment costs, as well as social security costs for students. Calculation of costs per student of AMSP “Biology” (full-time studies, 2 years, 80 CP) and information on the percentage distribution of funding see in the Table 3.3.3.1.

Table 3.3.3.1. Calculation of costs per student of AMSP “Biology”

	Name	Sum (EUR)	% distribution
1	Salary fund per student	6474.22	69.7

2	Employer's SSIAI 23.59%	1527.26	16.4
3	Business trips and business trips costs per student	46.27	0.5
4	Services per student	166.44	1.8
5	Costs of materials, energy, water and inventory per student	188.45	2.0
6	Cost of purchasing books and magazines per student	104.33	1.1
7	Equipment purchase and investment costs per student	359.05	3.9
8	Student social security per student	418.32	4.5
	Total costs for 1 student per 1 study year	**9284.34**	**100.0**

The costs per student in the study programme in Latvian and in English will not differ. The minimum number of students in a group to ensure the profitability of the study programme is 5 students in a group.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The qualifications of teaching staff involved in AMSP “Biology” fully meet the conditions of the study programme implementation, programme content, and the requirements of regulatory acts. See the attachment for the statement that the academic staff involved in the implementation of the academic study programme meets the requirements specified in the third paragraph of the first part of Article 55 of the Act on Higher Education Institutions (*3.4.1.AMSP Biology_Statement_Article 55*). The proficiency of the state language of the academic staff employed in the implementation of the study direction programmes complies with the regulations on the state language proficiency level and the procedure for testing it for the performance of professional and official duties, respectively, they allow any course in the study direction to be fully taught in the state language.

At the time of drawing the accreditation report, a total of 27 lecturers are involved in the implementation of ABSP “Biology” (see Table 3.4.1.1), whereof 21 are elected as academic staff

members at DU, while 6 are visiting lecturers. 96.2% of the total number in the study programme hold a doctoral degree.

Table 3.4.1.1. ***AMSP "Biology" academic staff***

Position	**Number**	***% from total***	***Elected at DU***	***Visiting lecturer***
Professor	4	15	4	
Assoc. prof.	1	4	1	
Docent	8	30	6	2
Leading researcher	8	30	7	1
Researcher	6	21	3	3
Total	**27**	**100**	**21**	**6**

According to the collected data, DU academic staff and visiting lecturers purposefully and regularly engage in various professional development activities in the fields corresponding to their scientific interests, both at DU and at foreign universities. In addition to the academic work at the university, the academic staff has practical experience in the implementation of branch-related projects and contractual works. This type of activity contributes to a comprehensive understanding of the specifics of the branch, thus ensuring a direct unity of theory and practice during the study process. The list with the experience of the academic staff involved in the implementation of the study programmes of the study direction "Life Sciences" in the implementation of branch projects is attached in the appendix (*2.4.3.Participation in projects*), whereas the list of the academic staff members is provided in *2.4.4.List of scientific publications* with indicated study programme related scientific publications and research achievements and patents of 6 recent years. See CVs of the academic staff members in appendix *2.3.7.CV of academic staff.*

The directions of the research work of the academic staff involved in the study programme are focused on the successful implementation of the study programme and in most cases are related to the teacher's specialization within the programme. Academic staff members prepare scientific articles published also in internationally peer-reviewed journals, participate in conferences and practical seminars, training, internships and various scientific events, publish textbooks and develop methodological materials, participate in international and national research projects.

The research carried out by the academic staff is an important contribution to the development of the branch they represent, as well as to the development of the study programme, improvement and updating of the study content. The research covers both theoretical aspects and current developments in the branch of biology, which are used in the respective study courses, thus promoting the interaction of the research and study process and significantly improving the quality of the study process. The participation of students in scientific and practical conferences and seminars as listeners is constantly encouraged.

Information on the suitability of the teaching staff's level of English knowledge for the implementation of the study programme in English can be found in Appendix *2.3.7. Basic information on teaching staff*.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

AMSP “Biology” was licensed on 19.05.2021 (license number 04041-103). Since the issue of the study programme license, there have been no changes in the academic staff of the study programme. Changes are not planned within the evaluation procedure of the study direction either.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The cooperation of the academic staff of the study programme is diverse, deciding on activities related to the organization and management of the learning process; considering questions about the content of studies; when planning scientific events; cooperating in the research field (conducting joint research within projects, writing publications, participating in scientific conferences, etc.).

The content and structure of the courses are discussed at regular meetings of the academic staff,

discussing how to maintain systemic approach as the basic principle of study course development within the study programme, how to improve the forms of organizing the learning process in order to facilitate the growth of students. Such discussions take place both collectively and individually.

The overall final stage of cooperation is related to the defense of Master's theses, which involves the majority of teaching staff (supervisors and reviewers). All involved teaching staff are invited to participate in the defense of the Master's thesis, which allows for a complex evaluation of the achieved results.

At the end of each study year, academic staff workloads for the next academic year are planned in structural units. Taking into account the results of the evaluation of the relevant study courses by the students of the programme and self-analysis of the academic activity performed by the instructors, the suitability of the academic staff for the development and teaching of the specific study courses is evaluated. Approval of academic workloads is carried out in accordance with the "Procedures for accounting the workload of academic staff at DU".

In 2022/2023, a total of 27 academic staff members are involved in the implementation of the master study programme. At the time of submission of the accreditation report, AMSP "Biology" has a total of 17 students.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	3.1.2.AMSP Biology_Diploma and supplement_EN.zip	3.1.2.AMSP Bioloģija_Diploms un pielikums_LV.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	3.1.4.AMSP Biology_Statistical data students_ENG.xlsx	3.1.4.AMSP Bioloģija_Statistikas dati par studējošajiem_LV.xlsx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	3.2.1.AMSP Biology_Compliance with national education standard_EN.docx	3.2.1.AMSP Bioloģija_Atbilstība valsts izglītības standartam_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	3.2.1.AMSP Biology_Study course mapping_EN.docx	3.2.1.AMSP Bioloģija_Studiju kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	3.2.1.AMSP Biology_Study plan_EN.xlsx	3.2.1.AMSP Bioloģija_Studiju plāns_LV.xlsx
Descriptions of the study courses/ modules	3.2.1.AMSP Biology_Description of study courses_EN.zip	3.2.1.AMSP Bioloģija_Studiju kursu apraksti_LV.zip
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	3.4.1.AMSP Biology_Statement_Article 55_EN.docx	3.4.1.AMSP Bioloģija_Apliecinājums par personāla atbilstību 55.pantam.edoc