



ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes

Biology Education

Chemistry Education

Master's Degree Programmes

Biology Research and Education

Chemistry Research and Education

Provided by

Fergana State, Uzbekistan

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A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for ¹	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC) ²
Kimyo ta'lim yo'nalishi	Chemistry Education	ASIIN	-	09
Kimyo izlanuvchilik va kimyo ta'limi	Chemistry Research and Education	ASIIN	-	09
Biologiya ta'lim yo'nalishi	Biology Education	ASIIN	-	10
Biologiya izlanuvchilik va kimyo ta'limi	Biology Research and Education	ASIIN	-	10
Date of the contract: 16.05.2025 Submission of the final version of the self-assessment report: 21.11.2025 Date of the audit: 24.02. – 26.02.2026				
Expert panel: Prof. Dr. Gabriele Hornung, RPTU University Kaiserslautern-Landau Prof. Dr. Kerstin Kremer, University Giessen Ass. Prof. Dr. Aibek Smagul, SDU University, Kaskelen Dr. Jens Meissner, BASF SE, Ludwigshafen Nigina Toshpo'latova, National Pedagogical University of Uzbekistan, Master's student				
Representative of the ASIIN headquarter: Rainer Arnold				
Responsible decision-making committee: ASIIN Accreditation Commission				

¹ ASIIN Seal for degree programmes;

² TC: Technical Committee for the following subject areas: TC 09 – Chemistry, Pharmacy; TC 10 – Life Sciences

Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 23.03.2023 Subject-Specific Criteria of Technical Committee 09 – Chemistry as of 29.03.2019 Subject-Specific Criteria of Technical Committee 10 – Life Sciences as of 28.06.2019	
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B Characteristics of the Degree Programmes

a) Name	Final degree (original)	b) Areas of Specialization	c) Corresponding level of the EQF ³	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Bachelor Biology Education	O'qituvchi Biologiya / Bachelor of Education in Biology	-	6	Full time	No	8 semesters	240 ECTS points	Once a year (September), 1991
Master Biology Research and Education	O'qituvchi, tadqiqotchi Biologiya / Master of Education in Biology	-	7	Full time	No	4 semesters	120 ECTS points	Once a year (September), 1991
Bachelor Chemistry Education	O'qituvchi Kimyo / Bachelor of Education in Chemistry	-	6	Full time	No	8 semesters	240 ECTS points	Once a year (September), 1991
Master Chemistry Research and Education	O'qituvchi, tadqiqotchi Kimyo / Master of Education in Chemistry	-	7	Full time	No	4 semesters	120 ECTS points	Once a year (September), 1991

³ EQF = The European Qualifications Framework for lifelong learning

Introduction

Fergana State Pedagogical Institute was founded in 1930. On March 1, 1991, it was granted the status of a university and renamed Fergana State University.

The university has 12 faculties (Economics, English Language and Literature, Physical Training, Physics and Mathematics, Natural Sciences, History, Pedagogy, Psychology and Art, Foreign Languages, Philology, Military Training, Joint Faculty of Agriculture (Uzbek-Hungary), Sport Activities, Physical Culture and 49 departments, as well as Master's and evening education departments.

Currently, 26978 students study at Fergana State University. The university trains scientific and pedagogical personnel in doctoral studies in 45 specialties. It also offers 60 areas of study at the Bachelor's level and 34 specialties at the Master's level.

Summary

The experts positively notice the following aspects:

- Students are satisfied with the degree programmes.
- Comprehensive tutorial and advisory system for students.
- Good cooperation between stakeholders (employers, alumni) and the university.
- Employers are satisfied with the graduates' qualification profile.
- Good job perspectives for Bachelor's and Master's graduates.
- Useful focus on regional research topics.
- Ambitious plan of introducing an English taught class in both Bachelor's programmes from the coming academic year.

In the following areas, the experts see room for improvement:

- Teachers' and students' academic mobility is rather low and should be better promoted. The number of international cooperations and scholarships should be increased and especially Master's students should be encouraged to spend some time abroad.
- It would be useful to improve the teachers' and students' English proficiency.
- There should be separate English homepages for each of the four study programmes. All stakeholders need to have access to the essential information about the degree programmes (profile, learning outcomes, study plan, module descriptions).
- The module descriptions need to include information about the students' total workload and the contribution of each exam to the final grade. It is necessary to provide module descriptions for all courses.
- It is necessary to introduce a compulsory final project (Bachelor's thesis) to the curriculum of the Bachelor's programmes. The final project should introduce students to research activities.
- The time students need for self-studies needs to be verified e.g. by putting a respective question in the satisfaction surveys that are conducted at the end of the semester.
- Safety measures in the laboratories need to be aligned with international standards (emergency exits signs, safety instructions posters, eye washers, emergency showers,

, safety cabinets etc.).

- There is no micro-teaching laboratory at FDU where teachers and fellow students can observe and review mock teaching sessions.
- Literature references in the module descriptions should be updated and more English literature references should be used.
- The final exams should also take students' practical skills in laboratory work into account.

C Expert Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Homepage FDU: www.fdu.uz
- Homepage Faculty of Natural Sciences: <https://www.fdu.uz/site/sa-hifa/2864f5cb9c6906234be1041e508b1bcadd666d5170a4bfce>
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The experts base their assessment of the learning outcomes on the information provided on the websites and in the Self-Assessment Report of all four degree programmes under review.

For all programmes, Fergana State University (FDU) has defined programme learning outcomes. They cover a number of general and specific competences students should acquire in their respective degree programme. Additionally, there are the specific learning outcomes for each module, which are listed in the respective module description. The learning outcomes and the content of degree programmes are revised at least once every three years, after regularly studying the development of science, technology, culture, economy, and society.

The experts refer to the Subject-Specific Criteria (SSC) of the Technical Committee Life Sciences as a basis for judging whether the intended learning outcomes of the Bachelor's degree programmes Biology Education, and the Master's degree programme Biology Research and Education as defined by FDU correspond to the competences as outlined by the SSC.

Graduates of the Bachelor's degree programme Biology Education should understand the basic biological processes and be capable of applying the scientific and pedagogical methods of the biological sciences. In addition, graduates should acquire relevant scientific knowledge in the different biological areas such as botany, zoology, microbiology, cell biology, molecular biology, biotechnology, and related natural sciences (chemistry, physics). Furthermore, the students should be able to conduct independent and safe laboratory experiments and fieldwork, plan, implement, assess, and follow up the educational biology learning process and be able to design and perform experiments in biology learning to collect, analyse, and interpret data to solve biological issues. Finally, students should be qualified to conduct life-long learning and work effectively, both individually and in a team, to demonstrate scientific, critical, and innovative attitude in biology learnings, laboratory works, and environmental care.

The Bachelor's degree programme Biology Education is designed to produce competitive graduates with competences to work as biology educators/teachers, who are able to plan, implement, evaluate, and develop modern biology learning. Most of the graduates of the Bachelor's degree programme Biology Education will find a suitable occupation in secondary schools or in other educational institutions.

The Master's degree programme Biology Research and Education is designed to equip graduates with a deep understanding of biological sciences alongside with advanced pedagogical and social skills. The intended learning outcomes focus on content mastery, educational proficiency, and the ability to conduct research in biology education. To this end, graduates should demonstrate an in-depth knowledge of key areas in biology, such as genetics, ecology, evolution, cell biology, physiology, and molecular biology, and be able to plan and conduct advanced biological experiments. In addition, they should understand the field of biology education in theory and practice, to develop and apply biology teaching techniques and methods, and to analyse education management policies and curricula. Furthermore, they should be able to design and carry out complex research activities in the area of biology education, including designing studies, collecting and analysing data, and interpreting results. Consequently, graduates should be able to take over leadership functions in the education sector.

The experts refer to the Subject-Specific Criteria (SSC) of the Technical Committee Chemistry, Pharmacy as a basis for judging whether the intended learning outcomes of the Bachelor's degree programmes Chemistry Education, and the Master's degree programme Chemistry Research and Education as defined by FDU, correspond to the competences as outlined by the SSC.

During the course of the Bachelor's degree programme Chemistry Education, students should acquire a basic knowledge of natural sciences and gain methodological and educational competences in the chemical sciences (analytical chemistry, organic chemistry, inorganic chemistry, physical chemistry, and biochemistry) in order to learn about the structure, dynamics, and energy, as well as the basic principles of separation, analysis, synthesis and characterization of chemicals or complex samples. Furthermore, graduates should also be able to carry out practical work in laboratories and to prepare experiments. Moreover, students should be familiar with the safe handling of laboratory equipment and chemicals and have knowledge about safety and environmental issues. In addition, graduates should acquire the necessary skills to work scientifically as well as in the field of education, adhering to modern methodologies and theoretical concepts in chemistry learning and teaching. This includes designing, implementing, and evaluating chemistry learning media by utilizing information and communication technology. This should qualify graduates to handle chemistry-learning problems and to provide quality chemistry learning that is conducted in classroom or institutions based on scientific data and analysis. Most of the graduates of the Bachelor's degree programme Chemistry Education will find a suitable occupation in secondary schools or in other educational institutions.

The goal of the Master's degree programme Chemistry Research and Education is to impart the necessary professional skills (pedagogic, personal, and social) in chemistry, which are needed to become a successful teacher, education manager, or researcher. To this end, graduates should master advanced theoretical principles in chemistry including organic, inorganic, physical, analytical, and biochemistry, and be able to plan and conduct advanced chemical experiments. In addition, they should understand the field of chemistry education in theory and practice, to develop and apply chemistry teaching techniques and methods, and to analyse education management policies and curricula. Furthermore, they should be able to design and carry out complex research activities in the area of chemistry education, including designing studies, collecting and analysing data, and interpreting results. Consequently, graduates should be able to take over leadership functions in the education sector.

Supplementing the subject-related qualification objectives, students of all degree programmes should have adequate competences in oral and written communication skills, be capable of working autonomously as well as in a team-oriented manner, be able to conduct research activities, and be capable of contributing to the field by publishing research findings or presenting at academic conferences. Furthermore, they should have trained their analytical and logical abilities, be able to apply information and communication technology, and show a social and academic attitude. This includes issues related to academic honesty, equity, and inclusion in the classroom. Finally, students should acquire communicative and language skills and should develop a strategy for life-long learning.

Several graduates of the Master's programmes continue with their academic education and join a PhD programme, others become teachers at high schools. However, they receive a higher salary and have a higher position than Bachelor graduates usually have. In addition, they can teach at universities or work as consultants in the area of education.

In summary, the experts are convinced that the intended qualification profiles of all undergraduate programmes under review allow graduates to take up an occupation, which corresponds to their qualification. The degree programmes are designed in such a way that they meet the goals set for them. In addition, the programmes correspond sufficiently to the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 10 – Life Sciences (Ba Biology Education, Ma Biology Research and Education) and the SSC of the Technical Committee 09 – Chemistry, Pharmacy (Ba Chemistry Education, Ma Chemistry Research and Education).

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Report

Preliminary assessment and analysis of the experts:

During the audit, the experts discuss with FDU about the appropriate English translation of the names of all degree programmes. They confirm that the original Uzbek names reflect the programmes' objectives and intended learning outcomes appropriately. In addition, the experts appreciate that all four degree programmes can be studied in Uzbek and Russian.

Moreover, the experts are satisfied that FDU has adjusted the English translation of the four study programmes so that the names now correctly reflect the focus and content of the undergraduate programmes, which is on education in the respective scientific area and on research and education for the graduate programmes.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions

- Discussions during the audit

Preliminary assessment and analysis of the experts:

All four degree programmes under review are offered by the Faculty of Natural Sciences of Fergana State University (FDU).

Education is conducted in Uzbek and Russian. In addition, in each academic year in the Bachelor's degree programmes, one course is offered in English, intended for students who are proficient in the English language. While the primary language of instruction in the Master's programmes is currently Uzbek (or Russian), a high level of English proficiency (B2) is a mandatory admission requirement for all Master's students. This ensures that all students can engage with international scientific literature, and FDU frequently involve foreign professors, who deliver guest lectures and seminars in English.

The undergraduate programmes are designed for four years and the graduate programmes for two years. However, for students who fail to accumulate sufficient credits, it is possible to extend the total duration of Bachelor's studies to eight years and Master's studies to four years. On average, 2-3% of students do not progress from year to year due to various reasons in each academic year due to reasons such as family issues, academic debts, and health problems.

During the audit the experts learn that since this academic year, both Bachelor programmes offer an English taught class for second year students. The students could decide if they want to join the English taught classes. Moreover, the programme coordinators explain that from the next academic year (2026/27) both Bachelor's programmes will open a class that will be taught in English from the first semester on. The experts appreciate that FDU is introducing these classes and consider it an ambitious plan. Offering a study programme entirely taught in English at a university in Uzbekistan is ambitious because English is not the primary language of instruction for most students or faculty, requiring a significant leap in language proficiency across the institution. It demands substantial investment in recruiting or training lecturers who can teach complex academic content confidently in English. Students must also adapt to learning and being assessed in a foreign language, which will raise academic challenges. In addition, such a programme requires English-language curricula, learning materials, and quality assurance systems, which represents a major institutional transformation.

It is highly encouraging that FDU has introduced fully English-taught courses for second-year Bachelor's students in biology and chemistry. However, it would also be advisable to extend this initiative to the Master's level. Since all applicants are required to hold a language certificate prior to admission, offering courses in English during the Master's programme would be both logical and beneficial. Conducting classes in English for Master's

students would not only enhance students' knowledge but also positively influence the effectiveness of the learning process, better preparing them for international academic and professional engagement.

The Bachelor' degree programme Biology Education is designed to prepare students for careers in education in the field of biology. The programme spans four years and is divided into eight semesters, requiring the completion of 240 ECTS points. The curriculum covers various aspects of biology education, including planning and organizing the educational processes, ensuring educational effectiveness, and providing assessment and feedback. It also emphasises creating a safe and stimulating learning environment and establishing cooperation with colleagues and parents. The curriculum includes fundamental biology courses (General Biology, Botany, Zoology, Human Anatomy and Physiology, Genetics, Microbiology, Ecology and Environmental Biology) as well as specialized biology courses (Molecular Biology, Evolutionary Biology, Biochemistry, Developmental Biology). The theoretical education is supplemented by practical laboratory and fieldwork in order to provide hands-on training in laboratory techniques such as microscopy, dissection, genetic analysis, and experimental design on one side and nature observation and data collection on the other side. Students learn to conduct experiments, analyse data, and present their findings. During field trips students gain practical experience in ecological and environmental fieldwork, including biodiversity surveys, habitat assessment, and conservation practices. In addition, students can choose elective courses that allow them to explore specific areas of interest within biology or related fields.

The Bachelor' degree programme Chemistry Education is designed to prepare students for careers in education in the field of chemistry. The programme spans four years and is divided into eight semesters, requiring the completion of 240 ECTS points. The curriculum covers various aspects of chemistry education, including planning and organizing the educational processes, ensuring educational effectiveness, and providing assessment and feedback. It also emphasises creating a safe and stimulating learning environment and establishing cooperation with colleagues and parents. The curriculum includes fundamental chemistry courses (General Chemistry, Organic Chemistry, Inorganic Chemistry, Physical Chemistry, and Analytical Chemistry) as well as specialized chemistry courses (Chemical Technology, Chemical Calculation, Biochemistry, Environmental Chemistry). The theoretical education is supplemented by practical laboratory work in order to provide hands-on training in laboratory skills, including synthesis, purification, analysis, and characterization of chemical compounds. In addition, students gain hands-on experience with analytical instruments such as spectrometers, chromatographs, and electrochemical analysers. In addition, students can choose elective courses that allow them to explore specific areas of interest within chemistry or related fields.

As the undergraduate programmes focuses on teacher education, pedagogical training has a large share in the curriculum. This includes courses such General Pedagogy, Teaching Methodology in Biology/Chemistry, Trends and modern approaches in continuing education, Inclusive education and Hospital pedagogy, as well as the teaching internships. This way students are trained in teaching methods specific to biology, including the use of experiments, multimedia resources, and interactive learning. Students also learn to design lesson plans, to manage classrooms, and to assess student progress. An essential part are the internships (teaching practicum) which the Bachelor's students conduct from the third semester on. They are following the 4 + 2 model, which means that students spend four days at the university and two days at secondary schools or other educational institutions every week of the semester. During the internships, students first observe the teaching processes and then can also apply their knowledge and teaching methods in real classroom settings. The experts appreciate that this way, students get acquainted with "real life" in schools already from the third semester on and thus can gain sufficient practical experience in teaching.

The general structure of the Bachelor's programmes is depicted in the following table:

Load distribution	hours	credits
Mandatory subjects	4320	144
Optional subjects	1800	60
Internship	1 080	36
Total	7 200	240

Table 1: Curriculum Structure Bachelor's Programmes, Source: SAR FDU

One important issue, which the experts discuss in detail with FDU, is the question why the Bachelor's degree programme does not include a compulsory final project (Bachelor's thesis). Currently "qualification work" as it is called by FDU either includes a final project or the "Final State Examination", which are both offered at the end of the studies. According to the programme coordinators currently around 20 % of the students chose to conduct a Bachelor's thesis, the rest do the final state examination. This is the students' choice, however, before the Covid pandemic all students had to submit a Bachelor's thesis but due to the restriction during the pandemic (only online teaching and no laboratory access) this was changed, and a final state examination was introduced.

The experts expect that the Bachelor's degree programme Biology Education and Chemistry Education introduce a compulsory final project (Bachelor's thesis) for all students. This would also support FDU's goal of becoming an internationally recognised research university. For this reason, all Bachelor's students should be involved in research activities and

conduct a final project (Bachelor's thesis). The final project should allow students to explore a specific area of science or science education in depth, involving experimental work and literature review. It should have a scope of at least six ECTS points, which is the minimum by international standards. Group projects are also possible, as long as each student contributes to the project, is responsible for a distinctive part, and receives an individual grade.

The Master's degree programme Biology Research and Education is designed to train future educators in the effective teaching of biology at various educational levels. The curriculum typically combines in-depth biological content with pedagogical techniques to ensure that graduates are well-prepared to become researchers in the area of biology or to teach biology in schools or other educational institutions. It is a full-time program that lasts two years, divided into four semesters, and requires the completion of 120 ECTS points.

The Master's degree programme Biology Research and Education encompasses the areas pedagogy, biology, and thesis. The pedagogy and biology courses impart professional and practical competences, while the thesis is designed to support the graduates in becoming researchers in biology education or fundamental biology. The curriculum includes only a few compulsory courses such as Methodology of Scientific Research, Methodology of Teaching Special Subjects, Professional Ethics, Development of the Organic World and Anthropology, and Conceptual Foundations of Biology. The rest of the curriculum is dedicated to electives and research work.

The Master's degree programme Chemistry Research and Education is designed to train future educators in the effective teaching of chemistry at various educational levels. The programme combines advanced knowledge of chemistry with pedagogical strategies to ensure graduates can effectively teach the subject at various educational levels. It is a full-time program that lasts for two years, it is divided into four semesters and requires the completion of 120 ECTS points.

The Master's degree programme Chemistry Research and Education encompasses the areas pedagogy, chemistry, and thesis. The pedagogy and chemistry courses impart professional and practical competences, while the thesis is designed to support the graduates in becoming researchers in chemistry education or fundamental chemistry. The curriculum includes only a few compulsory courses such as Methodology of Scientific Research, Methodology of Teaching Special Subjects, Professional Ethics, Physico-Chemical Methods of Analysis, and Chemical synthesis. The rest of the curriculum is dedicated to electives and research work.

Both Master's programmes are designed to produce graduates who are not only proficient in scientific knowledge but also capable of applying their skills in practical, educational, or research settings.

The general structure of the Master's programmes is depicted in the following table:

Distribution of load	hour	credit
Mandatory modules	840	28
Optional modules	960	32
Scientific research	1800	60
TOTAL	3 600	120

Table 2: Curriculum Structure Master's Programmes, Source: SAR FDU

During the four semesters, Master's students must also complete their Master's thesis (22 ECTS). The process of preparing for the thesis commences early in the programme, with the Master's thesis topic being assigned to students during the first semester. This allows them to start to develop their individual profile early and supports them to finish their studies on time. The Master's thesis covers research activities as well as reporting on the research project.

The experts appreciate that the departments already have regulations on the use of AI, which are included in the syllabus for self-studies in each course. As the use of artificial intelligence (AI) becomes more and more important, the experts point out that it is important to issue an official AI guideline for the whole university and to teach students how to correctly use AI. This is necessary in order to give them the tools, knowledge, and mind-set to thrive in a digital, AI-augmented world. An official AI guideline for the whole university provides clarity, consistency, and ethical direction for students, faculty, and staff.

The experts notice positively that the research activities carried out in the Department of Chemistry and the Department of Zoology and General Biology focus on topics with a regional connection. For example, the Department of Chemistry concentrates on doing research on local plants, lichen, and fungi, in order to decipher their chemical structure and to analyse their biological and medical properties. The Department of Zoology and General Biology has a research focus on the biology of Fergana valley (botany, entomology, fishes), which includes the conservation of endemic species and their environment. Master's students do a lot of field trips to collect samples for their research activities in these areas.

This is a very sensible strategy from the experts' point of view, because this is where FDU can offer clear added value, unique data, direct access to partners in the field and high social relevance. Regional research also strengthens the university's roots in the economy, politics and society and increases the chances of targeted funding and cooperation. Competing with top international universities, on the other hand, makes little sense, as they have significantly higher budgets, infrastructure and global networks that are difficult to match. A strategic focus therefore allows universities to build their profile, visibility and

impact with limited resources, rather than losing themselves in a global competition that is almost impossible to win.

During the discussion with the experts, employers suggest that FDU should consider putting a stronger focus on areas such as cell biology, medical biology and bioinformatics. The growing need for specialists in these fields not only expands employment opportunities for graduates but also provides access to modern scientific disciplines that are rapidly developing and gaining global significance. Focusing on these subjects would equip students with cutting-edge knowledge, enhance their competitiveness in the job market, and foster their integration into the international scientific community. A number of Master's theses in the biology and chemistry programmes involve the use of biologically active molecules extracted from plants employed in traditional medicine. It is therefore useful to introduce interdisciplinary modules bridging biology and chemistry with pharmacology and biomedicine.

In general, the experts confirm that both the Bachelor's degree programmes as well as the Master's degree programmes are well designed and impart a broad range of competencies so that graduates can find suitable jobs as teachers, educators, and researchers. In addition, agriculture, ecology, and nature preservation are important areas of occupation. The experts gain the impression that the graduates of all four degree programmes under review are well prepared for entering the labour market, can find adequate jobs in Uzbekistan and have good job perspectives. They stress that the programmes are well balanced between subject specific and educational content.

After analysing the module descriptions and the study plans, the experts confirm that all four degree programmes under review are divided into modules and that each module is a sum of coherent teaching and learning units. All practical lab work and internships are well integrated into the curriculum and the supervision by the Faculty of Natural Sciences guarantees for their respective quality in terms of relevance, content, and structure.

In summary, the experts confirm that the choice of modules and the structure of the curriculum ensure that the intended learning outcomes of the respective degree programme can be achieved.

Periodic Review of the Curriculum

The teaching staff explains to the experts that everyone can suggest changes in the curriculum, including new courses. The teachers confirm that they consider it as their responsibility to keep the curriculum up to date by improving the content to match the current standards in science and technology. The teaching staff mentions that new courses require

a proposal justifying the course as well as a documentation on available teaching capabilities of the responsible lecturer(s). The teaching staff confirms to the experts that several of them are working on proposals to remain on top of their field. Furthermore, the teachers specify that changes in the content of the lectures can be made all the time; however, large updates of the curriculum take place every three years. In this interval, changes in mandatory/electives courses can be made.

The experts approve that the curricula of the four study programs under review are periodically reviewed and that curricular changes are documented and announced.

FDU constantly tries to improve their curriculum considering internal and external stakeholders. Updates on the curriculum consider the feedback from the employers as well as alumni. Further input is based on the satisfaction surveys of the students as well as the development in the fields of science. Due to continuous monitoring of the study programmes, adaptations on the curriculum can occur annually.

Student feedback plays a critical role in curriculum evaluation. Students' satisfaction questionnaires and graduate surveys provide valuable insights into the programme's strengths and areas for improvement. Informal feedback is also collected through meetings with students.

The programme coordinators are responsible to oversee the updates of the curriculum, which primarily considers feedback from staff, students and colleagues. Afterwards, the curriculum is reviewed on university level, including a financial consideration, before the curriculum is presented to the advisory board. There, everyone is free to comment on the curriculum and make suggestions. Finally, the curriculum has to be accepted by the Faculty and University Council.

The experts have seen evidence that shows that the curriculum is periodically reviewed with regard to the implementation of the programme's objectives; curricular changes are documented.

International Mobility

FDU is actively advancing internationalisation by establishing partnerships with numerous universities from several countries such as Belarus, Kazakhstan, Korea, Russia, and Turkey through memorandums of understanding or agreements, facilitating collaborative teaching and research activities. Students' mobility at FDU is coordinated by the International Office which serves as the main centre of the university in coordinating students' exchange programs for both FDU students going abroad as well as receiving international students from neighbouring countries.

FDU provides some opportunities for students to conduct internships and exchange programmes abroad. Students who take part in student exchanges through cooperation programmes can gain recognition of the acquired credits after obtaining approval from their department. The credits acquired abroad are transferable to FDU after approval by the Dean's Office. Upon completion of studies at a partner university, a FDU student must provide a copy and original transcript to the Dean's office. The transcript contains not only ECTS credits, but also the level (course) corresponding to the conditions of study at FDU and the scale of ECTS credits. The Dean's office, based on a copy of the transcript decides on the recognition of the credits and enters the results into the university information system. Recognition is possible if the volume of the course (in credits) at the partner university is equal to or exceeds the main content of the same disciplines at FDU.

The International Office at FDU is responsible for the international activities such as coordinating and managing student mobility programmes, developing and maintaining relationships with partner institutions and organisations around the world, recruiting and admitting international students, providing support and assistance to international students during their time at FDU, such as helping with housing, visa issues, and other practical matters. Some financial support is available for students who want to spend some time abroad. As the experts learn during the audit, within the last academic year, 530 students from FDU spent some time abroad, 70 international students studied at FDU, and 54 students participated in joint degree programmes.

However, the number of students, from either the biology or the chemistry programmes, who spend some time abroad or at least at another Uzbek university is still low despite students' high interest. At the same time, the number of incoming students is also very low. For example, within the last five years, four biology and 18 chemistry students came to study at FDU in the biology programme. The total numbers are shown in the following tables:

Year³⁵	Incoming Students (Total)	Outgoing Students (Total)
2021	-	-
2022	-	-
2023	-	-
2024	4	15
2025	-	19
Total:	4	34

Table 3: Bachelor Biology, Students' Academic Mobility, Source: SAR FDU

Year	Incoming Students (Total)	Outgoing Students (Total)
2021-2022	1	0
2022-2023	2	0
2023-2024	3	2
2024-2025	12	0
2025-2026	0	23
Total:	18	25

Table 4: Bachelor Chemistry, Students' Academic Mobility, Source: SAR FDU

The students confirm during the discussion with the experts that some opportunities for international academic mobility exist and that the credits acquired abroad are recognised at FDU. However, they also point out that they wish for more places and scholarships for long- and short-term stays abroad. The number of available places in the mobility programmes is still limited and there are restrictions due to a lack of sufficient financial support. The lack of financial support hinders students from joining the outbound programmes. The experts understand these problems and recommend increasing the efforts to further internationalising FDU by offering more places in international exchange programmes and more scholarships. Currently, FDU mostly cooperates with CIS countries such as Azerbaijan, Kazakhstan, Kyrgyzstan, and Russia. However, within the last few years additional cooperations with universities in Japan, Korea, China, and Europe have been established. The experts support these efforts and point out that academic mobility should not be limited to CIS countries. Partnering with international universities that have strong education systems would give students more opportunities and connect FDU to the global academic community.

It is evident from discussions with students that there is considerable interest in participating in academic mobility programmes. One of the primary obstacles identified is the availability of financial support. Furthermore, during meetings with the Rector and Vice-Rectors, the experts notice that the institutional focus is directed towards short-term academic mobility, specifically in the form of summer schools. Nevertheless, it is important that participation in a full semester at a foreign university would substantially broaden students' cultural awareness and academic knowledge. Given that the university maintains an extensive portfolio of international partnerships, integrating biology and chemistry programmes within the framework of these agreements could significantly increase the number of undergraduate students able to benefit from academic mobility opportunities.

Additionally, given that Master's students are engaged in scientific research in the fields of

biology and chemistry, it would be highly advantageous for them to attend international conferences at which they could present their work. Such participation would, however, also require dedicated financial support from the university. Especially the Master's students should be strongly encouraged to spend some time abroad during their studies. Experiencing another academic and educational environment helps students see their field through a different cultural and scientific lens. This broadens their understanding and also improves their job opportunities.

The experts emphasise that it is very useful for students to spend some time abroad to improve their English proficiency and to get to know other educational systems. Employers prioritise hiring students who possess national certificates or have proficiency in foreign languages. In addition, the experts emphasise that not only the students but also the teaching staff should improve its English proficiency in order to be able to teach more in English and to expand the possibilities to conduct international research collaborations. Moreover, it would be very useful to invite more international guest lecturers. From the experts' point of view, inviting foreign lecturers for short-term seminars is highly beneficial, as it exposes students to diverse perspectives and teaching methods. However, it is equally important to extend this initiative by engaging a greater number of international faculty members for semester-long courses. Face-to-face instruction with visiting professors enriches the academic environment, offers sustained access to global expertise, and strengthens the university's reputation for international collaboration and excellence.

To enhance academic mobility, FDU should establish and organise a course that enables its teaching staff to improve their English language skills. Other universities in Uzbekistan have successfully implemented such a course, which has proven to be highly beneficial in improving the English proficiency of their teachers. Given that teachers often lack sufficient time to attend external learning centers, offering such a course within the university would be highly advantageous for all teaching staff.

A good starting point for initiating more international co-operations are the personal international contacts of the faculty members and the guest lecturers. It is also possible for students and teachers to apply to international organisations like the German Academic Exchange Council (DAAD) for receiving funds for stays abroad. In addition, FDU should invite more academics from renowned international universities as guest lecturers.

In summary, the experts appreciate the effort to foster international mobility and support FDU to further pursuing this path. However, with respect to academic mobility there is still room for improvement.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Website of the University
- Discussions during the audit
- Law "On Education" No. ZRUz-637
- Decree of the President of the Republic of Uzbekistan "On the organisation of admission to study in state higher educational institutions" No. UP-60

Preliminary assessment and analysis of the experts:

The admission regulations for Master's and Bachelor's students at FDU are published on the university's website. They are mainly regulated by the Republic of Uzbekistan and determined by the Law "On Education" No. ZRUz-637 and Decree of the President of the Republic of Uzbekistan "On the organisation of admission to study in state higher educational institutions" No. PQ-279.

Admission to Bachelor's degree programmes is additionally regulated by the Decision of the Cabinet of Ministers of the Republic of Uzbekistan No. RP-393 "On Adopting the Regulations on the Procedure for Admission to Studies, Transfer, Readmission and Exclusion of Students at Higher Educational Institutions". Applicants for Bachelor's degree programmes must have a certificate of graduation from a secondary school or a diploma of graduation from a college (vocational school). Practical/vocational experience is not required. Applicants must also pass a state examination administered by the State Testing Centre.

When applying for admission to higher education, applicants choose the subject they wish to study. Admission to higher education institutions is based on the results of the state examination. Applicants with the highest scores are recommended for state scholarships within the pre-announced allocation of scholarship places. In the next group, applicants are recommended by the State Commission for enrolment with tuition fees within the available number of study places. A special decree of the President of the Republic of Uzbekistan established special quotas for the admission of girls, disabled persons and children from low-income families to university education under additional allocations based on a state scholarship.

The examination subjects corresponding to the Bachelor's degree programmes of the higher education institutions are approved by the Ministry of Higher Education, Science and Innovation and announced at least six months before the start of the examinations.

For applicants to the Bachelor's degree programmes Chemistry Education and Biology Education the state exam will be held in three compulsory subjects - History of Uzbekistan, Native Language, Mathematics, and two specialty subjects, chemistry and mathematics for the Bachelor's degree programme Chemistry Education, and chemistry and biology for the Bachelor's degree programme Biology Education.

Admission to the Master's programmes is granted to graduates of a Bachelor's programme. According to KMRUz No. 393, "Decision on the Approval of the Rules for Admission to Higher Education Institutions, Transfer, Readmission and Exclusion of Students", admission to the Master's programme is based on a selection procedure based on the results of entrance examinations in the field of education and in English.

However, since the academic year 2022/2023, admission to the Master's programme at public higher education institutions will be based on the GPA of the Bachelor's degree. The admission strictly follows the order of scores, while no additional examination will be held. The minimum GPA at FDU for admission to Master's programmes is 2.4. Additionally, all applicants for Master's programmes need to submit a foreign language certificate (usually the foreign language is English) certificate with the minimum level of B2 (according to the Common European Framework of Reference for Languages).

The tuition fees are determined by the State Commission on Admission to the Educational Institutions of the Republic of Uzbekistan on the proposal of the Ministry of Higher and Secondary Special Education in consultation with the relevant ministries.

Foreign citizens shall be admitted to educational institutions of the Republic of Uzbekistan on a fee basis in accordance with the procedure established for citizens of the Republic of Uzbekistan, unless otherwise provided by the legislation of the Republic of Uzbekistan or international treaties.

The experts see that both Bachelor's degree programmes receive many applications and the demand is higher than the number of available study places. During the last five years, between 461 (2022/23) and 150 (2025/26) candidates applied for the Chemistry Education programme and between 532 (2022/23) and 368 (2023/24) for the Biology Education programme. The capacity of both programmes is between 60 and 110 students per intake. The exact numbers are shown in the following diagram:

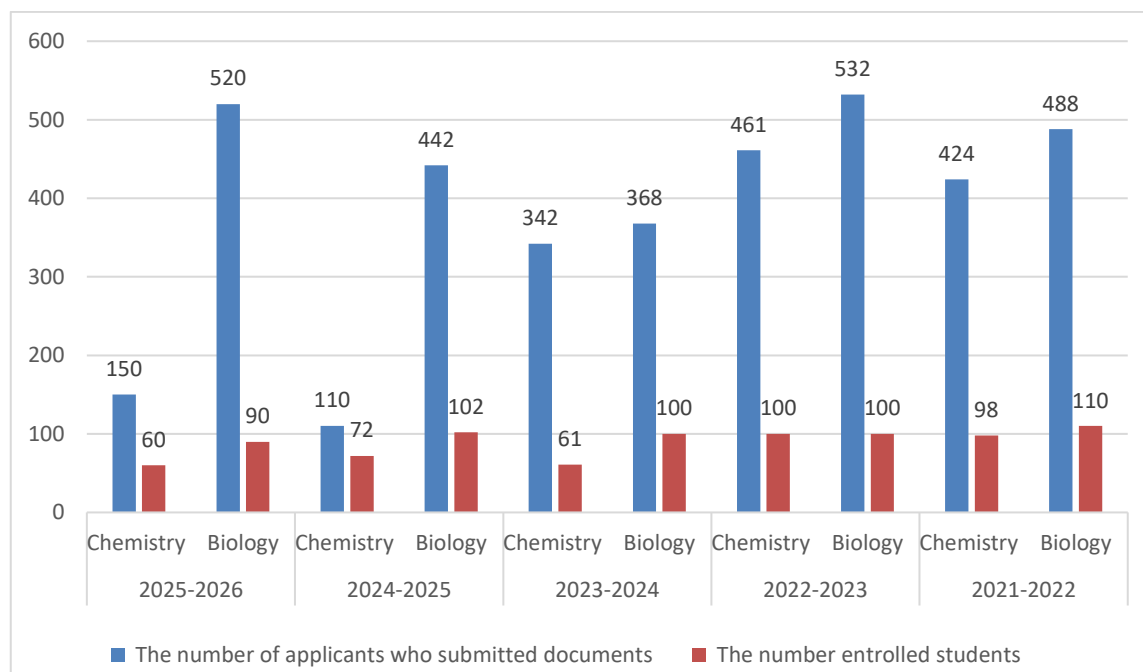


Diagram 1: Applications and Enrolment, Bachelor's Programmes, Source: SAR FDU

The decrease in the number of applications in the last two academic years is explained by the increase in the number of public and private higher education institutions in Uzbekistan as well as the possibility to choose up to five study programmes at different higher education institutions in one admission process.

In order to regularly attract applicants, FDU organizes open house days for high school graduates, excursions, University Olympiads in chemistry and biology and other similar events.

By contrast, the number of applications for the Master's degree programmes is much lower. Since 2021/22, the number of applications for both Master's programmes has significantly declined. This is due to a new national regulation, which requires Master's students to have at least a B2 level certificate in a foreign language. This prevents students from applying. However, the situation is changing as the foreign language proficiency of students is increasing. The exact numbers are shown in the following diagram:

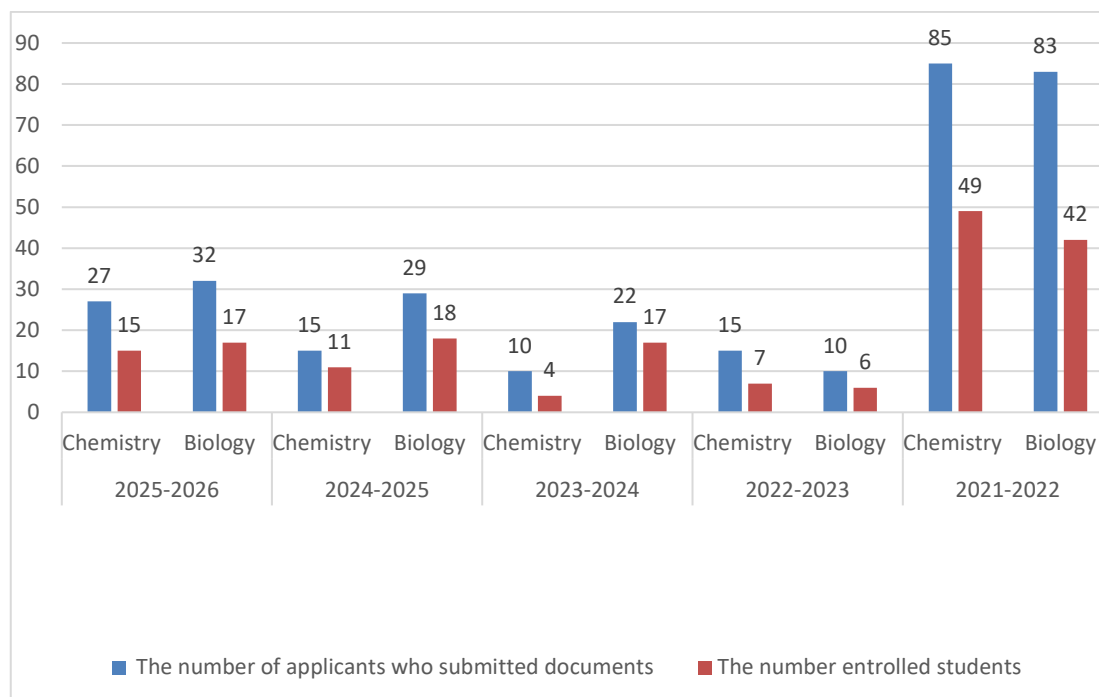


Diagram 2: Applications and Enrolment, Master's Programmes, Source: SAR FDU

All students at FDU, who do not receive a state scholarship have to pay tuition fees. The tuition fee for foreign citizens for one year of Bachelor's programme is 1,200 US dollars and for a Master's programme it is 1,800 US dollars. For citizens of the Republic of Uzbekistan, the yearly tuition fees for a Bachelor's degree programme are determined at 18 times the basic calculation amount, and for a Master's degree programme at 22 times the basic calculation amount. Currently, these amounts were determined as 7,780,000 UZS (530 €) for Bachelor's degree programme and 8,968,000 UZS (611 €) for Master's degree programmes. Women do not have to pay any tuitions fees if they enrol in a Master's degree programme at FDU.

In summary, the experts find the terms of admission to be binding and transparent.

Criterion 1.5 Work load and credits

Evidence:

- Self-Assessment Report
- Study plans
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the experts:

FDU applies the European Credits Transfer System (ECTS) for measuring the students' total workload. The experts confirm that ECTS points are awarded for all mandatory parts of the degree programmes, including work practices (internships). The workload includes contact hours and time for independent work.

The Bachelor's degree programmes encompass 240 ECTS points and one ECTS point is equal to 30 hours of students' total workload. The Master's degree programmes encompass 120 ECTS points. Details on the students' total workload in hours are presented in the module descriptions of each degree programme.

The standard study period is four years (eight semesters) for the Bachelor's degree programmes and two years (four semesters) for the Master's degree programmes. The maximum period of studying in the Bachelor's degree programmes is eight years, and in the Master's degree programmes four years after admission to the first semester.

Since the time students spend on self-studies was only estimated by the programme coordinators and these estimations seem to be too low in comparison to the actual time needed by the students, especially for the internships and theses, the experts ask FDU to verify the students' total workload and to adjust the awarded ECTS points. This could e.g. be done by including a respective question in the satisfaction questionnaires (see criterion 5). In any case, FDU needs to make sure that the actual workload of the students and the awarded ECTS credits correspond with each other and make that information transparent in the module descriptions and the study plans. (see criterion 4.1)

In summary, the experts conclude that the total work load of the degree programmes is adequate and that there is no structural pressure on the quality of teaching and the level of education due to the work load. The students express their general satisfaction with the amount and the distribution of their work load. The estimated time budget is realistic, and the students can usually complete the respective degree programme without exceeding the standard study period.

Criterion 1.6 Didactic and Teaching Methodology
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Evidence:

- Self-Assessment Report
- Study plans
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Various teaching and learning methods such as lectures, class and group discussions, case studies, demonstrations, assignments, simulations, experiments, field studies, teaching practise, and problem-based learning are applied in both undergraduate programmes under review. Structured activities include homework, assignments (reading or problem exercises) and practical activities. Group project assignments are given in some courses to develop students' skills in teamwork, communication, and leadership. The assignments and exercises should help students to develop their abilities with respect to critical thinking, written/oral communication, data acquisition, problem solving, and presentations.

During the classes, active and interactive teaching methods (e.g. lectures, discussions, reports, presentations, and group work) are applied. FDU wants to encourage the students to gain knowledge from different scientific areas and wants them to be able to solve specific problems through an interdisciplinary approach. This should ultimately contribute to the transition from a teacher-centered to a student-oriented teaching method. In order to involve all students in the learning process and to develop their thinking and analytical skills, the teaching staff uses several methods of training and gives assignments on different levels of complexity. Online video lessons are used and uploaded to the HEMIS platform so that students can learn about the respective subjects. Presentations, video materials, and animated videos are used to explain technological schemes based on the curriculum of the presented topic. However, the experts are convinced that preparing video and animation resources on its own is preferable to downloading them from YouTube.

The most common method of learning in the Bachelor's degree programmes is class session, with several courses having integrated laboratory work. Lecturers generally prepare presentations to support the teaching process. At Bachelor's level, the students first gain theoretical knowledge and have more practical classes in their further studies. At Master's level, students conduct more individual scientific research. In general, the following teaching methods are used in the degree programmes: lectures, seminars, laboratory classes, internships, small group activities, and final thesis.

With individual or group assignments, such as discussions, presentations, or written tasks, students are expected to improve their academic as well as their soft skills. Laboratory work covers laboratory preparation, pre- or post-tests, laboratory exercises, reports, discussions, and presentations. In addition, practical activities should enable students to become acquainted with academic research methods.

In the Master's degree programmes, more student-centred learning models are applied in order to improve students' analytical and scientific skills. To this end, in most courses didactic methods such as cooperative learning, case studies, and project-based learning are

applied. In general, the focus in the Master's degree programmes is on self-organised learning and research-oriented teaching and learning methods.

The education is conducted in Uzbek and Russian languages. Also, every academic year, teaching in English is offered for students with a high English proficiency. In the "Concept of the development of the higher education system of the Republic of Uzbekistan until 2030" approved by the decree of the President of the Republic of Uzbekistan No. PF 5847 dated October 8, 2019 it has been emphasized that in higher education institutions should systematically increase the share of professors and students who have foreign language certificates so that the share of specialised subjects taught in foreign languages can be increased. The students confirm during the discussion with the experts that some classes are offered in English and that they are satisfied with this opportunity.

In summary, the expert group considers the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes. In addition, they confirm that the study concepts of all programmes under review comprise a variety of teaching and learning forms as well as practical parts that are adapted to the respective subject culture and study format. It actively involves students in the design of teaching and learning processes (student-centred teaching and learning).

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 1:

The experts acknowledge that enhancing academic mobility is a priority task for FSU. This includes establishing international partnerships and encouraging staff and students to participate in international mobility programmes. Establishing a Language Centre to promote teachers' and students' language proficiency, especially in English, is also an important step that will help the internationalisation of FSU.

The experts appreciate that FSU fully supports the experts' conclusion regarding the importance of a compulsory final project in Bachelor's programmes. Systematically engaging students in empirical research activities and developing their ability to apply theoretical knowledge in practice is one of the priority directions for ensuring the quality of education. To this end, the compulsory Bachelor's thesis system will be fully implemented for final-year students from the 2026/2027 academic year. The new research topic database is currently being prepared and will be announced and presented to students at the beginning of the next academic year. The experts agree with this plan and expect to see the results in the further course of the accreditation procedure.

The experts are glad that FSU agrees that it is important to verify the students' actual workload within the ECTS framework. Adding a new block of questions focused specifically on independent study workload to the traditional end-of-semester questionnaires is a good idea and the experts expect to receive the results in the further course of the accreditation procedure.

The experts consider criterion 1 to be mostly fulfilled.

2. Exams: System, concept and organisation

Evidence:

- Self-Assessment Report
- Module descriptions
- Regulation on the system of control and evaluation of students' knowledge in higher education institutions
- Discussions during the audit

Preliminary assessment and analysis of the experts:

In the Uzbek system, students' assessment is based on continuous evaluations as well as on midterm and final exams. Students' continuous and midterm exams are evaluated by the teachers who conduct the lectures, seminars, practical or laboratory sessions. Usually, the continuous assessment (including practical work and self-study tasks) contributes with 30 %, mid-term exams with 20 %, and final exams with 50 % to the final grade. Students who have collected at least 60% of the maximum score allocated for the continuous and midterm exams are allowed to take part at the final exam, which can be oral, written, computer based, or a practical assignment. The final exam is evaluated on a 50-grade scale, and students need to score at least 60% in order to pass. The students' academic performance is determined by the total grades earned from all types of assessments (continuous, midterm, and final) and is recorded in the students' academic record in the electronic system (HEMIS). The HEMIS information system provides e-learning services to administrative staff, professors, and students for the main areas of activity of higher education institutions. The information system acts as a bridge between the university and the Ministry of Higher Education, Science and Innovation. It reduces the number of different information from the university, rejects their paper form, and digitises the management system. It allows FDU to manage study plans, lessons, and schedules and includes information about students' learning success.

Mid-term exams are carried out during the semester in order to assess the knowledge and practical skills of the student after the completion of the relevant section of the degree program. The form and duration of the mid-term is determined by the relevant department based on the nature of the subject and the hours allocated to the subject. There is no mid-term exam for courses with less than two academic hours per week. If a student does not enter the mid-term and (or) final exam for valid reasons (illness etc.), the respective exam may be reassigned to that student on the basis of an order from the Dean of the Faculty.

The final examination at the end of the semester is carried out by a teacher, who has not conducted classes in the respective course, meaning that a teacher who has taught the relevant discipline is forbidden from participating in the final examination. Specialists and experienced teachers from other higher educational institutions or stakeholders (preschool institutions, general secondary education organizations) may be involved in the final assessment and evaluation.

A student who, for non-valid reasons, misses 25% or more of the scheduled classroom hours for a discipline, will be suspended from that subject and is not eligible for the final exam. Students who are not allowed to take the final exam, as well as those having received an unsatisfactory grade in the final exam, have acquired as so called “academic debt”. Academically indebted students have the right to re-take courses in the following semesters at their own expense. Students need a GPA ≥ 2.5 in order to be allowed to advance to the next semester.

A short summer semester may be organised for the subjects not mastered in the previous semesters during the summer vacation of first to third year undergraduate and first year graduate students. For students who fail to accumulate sufficient credits, it is possible to extend the total duration of Bachelor’s studies up to eight years and of Master’s studies up to four years. On average, around 10% of the Bachelor’s students do not progress from year to year due to various reasons such as family conditions, academic debts, health issues etc. In the Master’s programmes, almost all students fulfil their academic obligations as planned.

The grading scale is depicted in the following table:

Grade	5-Point Scale	% Range	Description
A+	4.5 - 5.0	91 - 100	Excellent – Complete mastery, no errors, active participation
A	4.3 – 4.5	86 - 90	Excellent – Independent mastery, accurate answers

B+	4.05 – 4.29	81 - 85	Good – Clear understanding, minor errors
B	3.51 – 4.04	71 – 80	Good – Sound knowledge, some minor inaccuracies
S+	3.3 – 3.5	66 - 70	Satisfactory – Basic understanding, some difficulty expressing ideas
S	3.0 – 3.29	60 - 65	Satisfactory – Limited accuracy and completeness
F	Below 3.0	Below 60	Unsatisfactory – Knowledge not mastered

Table 5: Grading Scale, Source: SAR FDU

Students who are dissatisfied with their grade have the right to appeal them. Students may submit an appeal within one working day after exam results are announced. Midterm exam appeals are reviewed by a three-member departmental commission within three working days; final exam appeals are reviewed by a five-member university commission within three working days after all final grades have been published. The expert group notes that students only have 25 hours after the publication of exam results to appeal against their grades. In their view, it would be sensible to extend the appeal period to give students more time to consider their decision.

The experts think that it would be beneficial to incorporate laboratory-based assessments into the final exams. Currently, final and midterm exams predominantly focus on theoretical knowledge. However, many students and graduates face challenges when it comes to conducting practical laboratory sessions. By adding laboratory components to the final or midterm exams, students would be better prepared for real-world applications and would have the opportunity to demonstrate their hands-on skills. This approach will also improve the overall evaluation process by providing a more comprehensive assessment of students' capabilities.

In the Master's programmes, the completion of a Master's thesis is a mandatory requirement (22 ECTS). The process of preparing for the thesis commences early in the programme, with the Master's thesis topic being assigned to students during the first semester. This allows them to start to develop their individual profile early and supports them to finish their studies on time.

The experts inquire about the Master's theses and would like to know, whether these are done at the university or externally at companies or research institutions; they also ask about the involved quality management. They learn that several Master's students do their thesis at external research institutions, for example, at the Academy of Science, which is

the main scientific organization of the Republic of Uzbekistan. It coordinates research in all areas of science and technology. The quality of external research activities is checked by the supervisor, and one supervisor of the final thesis must be a member of the teaching staff. Master's students can choose to conduct their research activities either in the area of fundamental sciences or in the area of science education.

As part of the on-site visit, the experts also inspect exemplary examinations as well as Master's theses. Overall, they are satisfied with the quality of the examinations and theses. It is observed, however, that all diploma works presented focused exclusively on the study of local flora and fauna. It is recommended that students be afforded the opportunity to also select diploma topics relating to pedagogical methods, assessment criteria, and educational research. This broader framework would encompass both experimental work in the natural sciences and topics within the field of education.

In summary, the experts confirm that the different forms of examination used are competence-oriented and are suitable overall for verifying the achievement of the intended learning outcomes as specified in the respective module descriptions. The form of examination is determined individually for each course and published in the respective module description. The forms of examination are based on the main content of the modules and the level is appropriate for the respective degree programme.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 2:

The experts appreciate that FSU fully supports the experts' conclusion that assessing only the level of theoretical knowledge in the biology and chemistry programmes is insufficient. Practical laboratory skills play a decisive role in ensuring graduates' readiness for the labour market and should be taken into account in the final exams. To achieve this goal, the assessment criteria will be adjusted. For example, 20–30% of the grade in the final examination will be allocated specifically to the demonstration of practical/laboratory skills. During the final examination, students will be required to perform specific practical tasks and step-by-step assessment criteria (rubrics) are being developed for each practical skill.

The new practical assessment system will be piloted in selected subjects (zoology, molecular biology, inorganic chemistry, analytical chemistry) during the final examinations of the spring semester of the 2025/2026 academic year (June 2026). From the autumn semester of the 2026/2027 academic year, it will be fully implemented across all courses and laboratory subjects. The experts are satisfied with this improvement plan.

The experts consider criterion 2 to be fulfilled.

3. Resources

Criterion 3.1 Staff and Development
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Evidence:

- Self-Assessment Report
- Staff Handbook
- Study plans
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the experts:

At FDU, the staff members have different academic positions. There are professors, associate professors, senior teachers, and teachers. The academic position of each staff member is based on research activities, publications, academic education, and supervision of students. For example, a full or an associate professor needs to hold a PhD degree. In addition, the responsibilities and tasks of a staff member with respect to teaching, research, and supervision depend on the academic position.

The teaching staff involved in both Chemistry programmes includes currently 35 persons (8 full professors, 24 associate professors, 3 teachers). 32 of them have a doctoral degree, the rest has a Master's degree.

According to the documents provided by FDU, the current academic staff of the Biology Departments includes 37 persons (3 full professors, 25 associate professors, 9 teachers). 28 of them have a doctoral degree, the rest has a Master's degree.

The detailed numbers are shown in the following diagram:

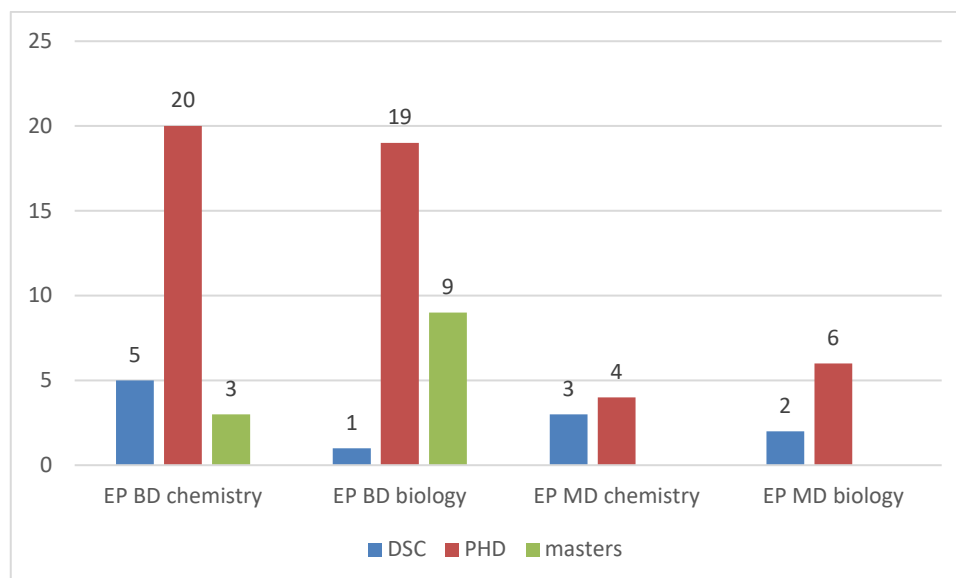


Diagram 3: Number of Academic Staff Members, Source: SAR FDU

Only staff members with a doctoral degree can teach in the Master's programmes. Teachers without a PhD supervise seminars, practical sessions, and laboratory work but usually do not give any lectures. In addition, there are non-academic staff members consisting of librarians, technicians and administrative staff.

The experts discuss with FDU's management how new staff members are recruited. They learn that every year the faculties and departments announce their vacancies to FDU's management, which subsequently announces the vacancies on the university's homepage. Applicants with a PhD are preferred. However, Master's graduates are also accepted as teachers. New promising teachers with a Master's degree are encouraged to join a PhD programme either at FDU or at another university. As the experts learn during the audit, FDU's focus is on developing young promising Master's graduates by hiring them as lecturers and giving them the opportunity to join a PhD programme. Currently, 64% of the teachers at FDU have a PhD, the experts note positively that this share has increased significantly within the last years.

Applicants to the open positions can submit the required documents within 30 days from the date of the announcement's publication on the university's website. Once the documents are properly submitted and accepted, members of FDU's Scientific Councils select candidates through a closed voting process.

In accordance with Article 5 of the Law of the Republic The university selects the applicants based on an interview and the submitted documents. Newly hired young teachers are supervised by experienced members of the academic staff who act as mentors for the new teachers.

In addition to the permanent teaching staff, qualified specialists who have been working effectively in the field of higher education for many years are constantly involved in the educational process to improve the quality of education. This concerns mostly professors from other Uzbek universities but also scientists and professors from international universities and scientific organisations are also involved in the educational processes. As mentioned in the Self-Assessment Report, within the last five years several international experts from countries such as China, France, Germany, Italy, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Ukraine, and USA have been invited as guest lecturers to teach in the area of biology and chemistry.

During the audit, the experts inquire how high the teaching load is and if enough opportunities are offered to the academic staff members to conduct research activities. They learn that academic full and associate professors at FDU have a workload between 500 and 700 hours per academic year, the workload for senior teachers and teachers is slightly higher at 750 to 800 hours. The members of the teaching staff confirm during the audit that their teaching load (around 3 to 4 courses per semester) is appropriate and leaves them enough time for conducting research activities.

In summary, the experts confirm that the composition, scientific orientation and qualification of the teaching staff are suitable for successfully implementing and sustaining both degree programmes.

Staff Development

FDU encourages training of its academic staff for improving the educational abilities and teaching skills. For example, the university has a training centre where teachers can attend courses to improve their pedagogical skills as well as other skills such as foreign languages. FDU also provides financial support to teachers who wish to pursue doctoral studies or other academic development and research activities.

During the audit, the experts inquire if the teaching staff has the opportunity to spend time abroad and to participate in international projects. They learn that there is a budget funded by the university for academic staff who want to go abroad e.g. for taking part at conferences or workshops. In general, the teachers are satisfied with the existing opportunities and the available financial support.

To enhance academic mobility, FSU should establish and organize an English language course specifically designed for teachers. While the university has already introduced special English courses for students, extending this initiative to teaching staff would open numerous opportunities for professional growth. Such a program would not only strengthen

teachers' academic mobility but also foster international collaboration and professional development. Given that many teachers lack sufficient time to attend external learning centers, offering an in-house course within the university would be highly advantageous, ensuring accessibility and encouraging broader participation among faculty members (see criterion 1.3).

In summary, the experts confirm that FDU offers sufficient support mechanisms and opportunities for members of the teaching staff who wish for further developing their professional and teaching skills.

Student Support

FDU provides a support system for all students; it includes consultations with advisors about the individual educational plan and the study progress. Each academic advisor is a member of the academic staff and is responsible for several students from her/his classes. He/she is the student's first port of call for advice or support on academic or personal matters. The role of the academic advisor is to help the students with the process of orientation during the first semesters, the introduction to academic life and the university's community, and to respond promptly to any questions. They also offer general academic advice, make suggestions regarding relevant careers and skills development and help if there are problems with other teachers.

In addition, the students can contact their advisor any time for assistance in academic questions. The members of the teaching staff are available on any issues regarding the degree programmes and offer advice on particular modules, as well as on required papers or reports.

For new students, FDU organizes a "University Introduction Week", which is held during the first week of September. This orientation week covers all essential aspects of university life, including FDU's organisational structure, administrative systems, internal policies, the credit-module system, and procedures for contacting staff members. The programme also includes a campus tour and instructions on using university facilities like the library.

Additionally, the university's "International Cooperation Department" provides specialized support for foreign students. This department assists with all necessary visa documentation, helps secure suitable housing, and implements dedicated programmes to facilitate their cultural adaptation.

FDU provides housing for students from distant regions in its dormitories, with allocation criteria based on social status and geographical origin. For students not placed in dormitories, tutors actively assist in finding nearby private rental apartments. The university supports these students by subsidizing 50% of their monthly rental costs.

An on-campus medical center, staffed by a full-time doctor and nurse, is available to all students for primary healthcare and psychological needs. The university provides a professional psychological counseling service, operated by a highly qualified psychologist, available on weekdays from 8:00 to 17:00. This service, which supported over 120 students in the last academic year, guarantees strict confidentiality for all students seeking help.

Moreover, FDU is bound to support students with special needs. For example, campus buildings are equipped with ramps, classes for handicapped students are scheduled whenever possible on the first and second floors. A dedicated "Mother and Child Room" is available for students (particularly common among Master's students) who need to care for their infants between classes and students with documented disabilities are granted compensation, such as additional time, during examinations.

Finally, FDU has a "Career Center" and an alumni network. The Career Center organises "Career Days" at least twice per year, inviting specialists and employers from various sectors to engage with students. During the last academic year, nine such events were held for Biology and Chemistry students, connecting them directly with potential employers. FDU actively maintains a strong relationship with its graduates through the alumni network. Alumni are frequently invited back to participate in "Career Days" as guest speakers. They provide current students with practical, first-hand advice on the skills and knowledge required in the current labor market and offer internship opportunities.

The expert group notes approvingly the dedication and motivation of the teaching staff; there are enough resources available to provide individual assistance, advice, and support for all students. The comprehensive support system is one of the strong points of FDU, which helps the students to achieve the intended learning outcomes and to complete their studies successfully and without delay.

Criterion 3.2 Funds and equipment
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Evidence:

- Self-Assessment Report
- Visitation of the facilities
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Approximately 8% of the university's budget are provided by the Uzbek government and around 80% are derived from tuition fees. Other sources such as cooperations with companies, grants, and business units (e.g. bee keeping, vineyards, football team) contribute

with around 12 % to the university' general budget. Additional funds for research activities can be provided by the Uzbek government, but the university has to apply for them. The experts notice positively that FDU has doubled its income within the last five years, since receiving its financial independence from the Uzbek government in 2021.

The academic staff members emphasise that from their point of view, both the Bachelor's as well as the Master's programmes under review receive sufficient funding for teaching and learning activities. The students confirm this positive impression and state their satisfaction with the available resources.

The laboratories are primarily designed and equipped for teaching and instructional purposes. For the biology programmes, the laboratories are located within the Department of Zoology and General Biology. The Department of Chemistry primarily has educational laboratories, which are equipped specifically for the subjects taught. These include laboratories for analytical chemistry, organic chemistry, and inorganic chemistry.

During the on-site visit, the experts can see for themselves that the laboratories are equipped with the necessary basic equipment as well as with some advanced and modern laboratory equipment, but that there are a number of outdated instruments in the teaching laboratories of the Faculty of Natural Sciences. One group of students is divided into two small groups in order to carry out practical training, where the number of students in the laboratory will be 10 -12 students, who are trained by one teacher. This approach is caused by the limited laboratory space.

In general, the visited chemistry and biology labs at FDU are in a good state and well maintained. The available instruments (HPLS, GC, IR, X-ray diffraction, PCR and more) is modern, in use and in good working condition. Existing safety measures were up to date (e.g. fire extinguishers were checked 2025) and safety equipment is present (e.g. lab coats or safety goggles), however the use of the personal safety equipment was not consequently followed (e.g. safety goggles).

Instrumentation

The use and maintenance of the instrumentation of FDU Chemistry labs was well received. However, more instrumentation would be beneficial in order to broaden the practical skills of research-oriented master students working towards a PhD. Examples are surface tension measurement, Langmuir-Blodgett, light scattering, NMR, thermo gravimetry.

The use and maintenance of the biology laboratories is also positively received. The laboratories are equipped with modern microscopes and state-of-the-art video screens for documentation and demonstration purposes.

The Department of Zoology and General Biology conducts well-recognized research on conservation in the Fergana Valley, employing modern molecular biology methods such as DNA barcoding of endemic fish species. In these areas of specialization, it would be highly worthwhile investing in dedicated research laboratories in order to provide strong and sustainable research perspectives for Master's and PhD students.

The experts confirm that fume hoods as well as clean benches are present in some labs. However, it is not clear if the number of fume hoods is sufficient to fulfill the demand of the presented schedule for the number of students (e.g. organic chemistry, extraction with solvents). It is recommended to increase the number of fume hoods for the chemistry part of the labs.

With respect to the safety measures the experts see need for improvement. The respective safety equipment was visibly present in the labs and lab coats were used in all labs visited. However, safety goggles were not used in any lab. This is especially critical when working with hazardous substances and needs to be enforced consequently for all experimental work. A respective signs/pictogram at the entrance of every lab is helpful, in order to remind the students and teachers. Specific safety training before starting a practical course (e.g. every semester) is helpful for highlighting the potential dangers of every experiment and good practice.

Emergency exit signage should be installed above all relevant doors to ensure clear identification of evacuation routes in the event of an emergency. Respective emergency plans and signs were present and clearly visible in the hallways of the lab building but are missing directly in the lab room. Additionally, emergency eye showers/washers should be present in every lab in order to urgently respond to contamination. Eye washers usually don't need to be connected to a conduit but can be standalone squeeze bottles.

Emergency showers should be installed in the lab section of the buildings. It is usually not necessary to have such a shower in every laboratory, and they can be located on the hallway. The need for emergency showers should be evaluated based on the potential risks (e.g. when working with acids/bases in larger amounts/higher concentrations or hot liquids). This risk-based assessment should be documented in written form and regularly reviewed.

Fire extinguishers in the lab should be mounted at a fixed point in the room and marked with easily recognizable signs. Especially, the storage of fire extinguishers on top of cabinets (above head level) is not ideal.

Hazardous materials are stored on the tables (e.g. benzene containing samples) and open cupboards (e.g. potassium chromate solution). Although, the samples and solutions were

labeled with the name of the compound hazard pictograms (e.g. GHS symbols) were missing. It is good practice that the potential dangers of hazardous materials are immediately visible to everybody when entering the lab (e.g. emergency responders). Furthermore, hazardous chemicals should be placed in a ventilated cabinet when stored for a prolonged time. Hazardous/chemical waste should be stored in a ventilated space (e.g. cabinet under a fume hood) to prevent build-up of fumes. Non-hazardous waste could be separated from the hazardous waste and stored in the general lab space.

The storage of food and the consumption of food in the lab should be unambiguously forbidden. A food-like container with a spoon was found in a lab-fridge which was simultaneously used for chemical storage. In order to avoid misunderstandings, every fridge in the lab should be marked as such (e.g. "Not for food"). If necessary (for food chemistry), food or food-like samples could be stored in such fridges when clearly marked as "non-food" / "not-safe to eat" and stored in an appropriate chemical container.

A list of hazardous substances should be maintained for each storage room. This list should be accessible for everybody using the storage room and should contain statements about the potential hazard for each substance (e.g. GHS symbols). Cabinets containing flammable, corrosive, or otherwise hazardous chemical reagents must be secured and clearly labelled in accordance with relevant safety standards. Cabinets and refrigeration units (including refrigerators and freezers) in the biology laboratory must be clearly labelled to indicate the presence of biohazardous, flammable, or otherwise dangerous materials. All reagents stored in refrigeration units must be kept in accordance with the manufacturer's instructions. For instance, it was observed that a polymerase enzyme was stored in a refrigerator at +6.7°C, whereas the manufacturer's label specified storage at -20°C. Such discrepancies must be rectified promptly to ensure the integrity of reagents and the safety of laboratory personnel.

Moreover, it is recommended to implement a regular safety assessment in order to avoid insufficient and excessive safety measures and maintain a clean and well-functioning laboratory. Such assessment could be performed before implementing a new instrument or technique in the lab.

It is crucial to modernize and enhance laboratory facilities to meet contemporary academic and safety standards. Each laboratory must display clear safety signage to indicate potential hazards and emergency procedures, while chemical and biological waste must be properly collected, stored, and disposed of in strict compliance with established regulations.

The experts stress that there are many hazardous substances and instruments used in the laboratories, which might cause a significant risk of accidents and presents a danger to human health, and the environment. This demands care in order to protect human health, conserve the environment and to prevent laboratory accidents. As a consequence, FDU needs to make sure that the internationally accepted safety standards are adopted in all laboratories in the near future.

The experts notice that the Faculty of Natural Sciences has no micro-teaching laboratory. As micro-teaching is an important teacher training and faculty development technique whereby the professors and fellow students observe and review a teaching session, such a laboratory should be available at the Faculty of Natural Sciences. This way, students can get constructive feedback from professors or fellow students about what has worked and what improvements can be made to their teaching technique. Such a laboratory would enable students to systematically link their content knowledge (CK) with pedagogical content knowledge (PCK) and thereby further develop their professional competencies.

During the audit, the students express their satisfaction with the available scientific literature and the library. Remote access via VPN is possible and FDU offers access to several scientific digital databases, so that teachers and students can access current scientific publications and e-books. According to the decision of the President of the Republic of Uzbekistan dated July 6, 2022 "On approval of the innovative development strategy of the Republic of Uzbekistan for 2022 2026" PQ 307, higher education institutions in Uzbekistan can access international scientific platforms such as "Web of Science", "Link Springer" and "Science Direct". The Ministry of Higher Education, Science and Innovation has reached an agreement with these organisations on the use of their digital databases.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 3:

The experts confirm that the safety measures have been improved. For example, evacuation exit routes and corresponding signage in all laboratory rooms have been thoroughly reviewed, updated in line with international standards, and installed in appropriate locations. Additionally, safety instructions have been revised and displayed in clearly visible areas across all laboratories and eye-wash stations and emergency showers have been installed. The installation of safety cabinets is currently in progress and is expected to be completed in the upcoming academic year. The experts expect to receive the verification of the still needed improvements in the further course of the accreditation procedure.

The experts appreciate that FSU has recognised the importance role of microteaching technologies in training prospective biology and chemistry teachers, as well as in developing the pedagogical competence of early-career teaching staff. To this end, FSU will establish a microteaching laboratory, and a dedicated room is being allocated within the faculty's teaching building for this purpose. This room will be adapted for small-group work and lesson observation and will be equipped with the necessary technology. This includes the procurement of PTZ video cameras capable of recording lessons from multiple angles, microphones for clear recording of both teacher and student speech, an interactive whiteboard (smart board), and a large-screen monitor/projector for collaborative analysis of recordings. The microteaching laboratory will be fully operational from the beginning of the 2026/2027 academic year. The experts are satisfied with this improvement plan.

The experts consider criterion 3 to be mostly fulfilled.

4. Transparency and documentation

Criterion 4.1 Module descriptions

Evidence:

- Self-Assessment Report
- Module descriptions
- Homepage FDU: www.fdu.uz
- Homepage Faculty of Natural Sciences: <https://www.fdu.uz/site/sahifa/2864f5cb9c6906234be1041e508b1bcadd666d5170a4bfce>
- Discussions during the audit

Preliminary assessment and analysis of the experts:

After studying the module descriptions, experts observe that the module descriptions do not include all necessary information. They point out that the module descriptions need to inform correctly about the students' total workload (in hours per semester) and how the different exams contribute to the final grade. In general, the experts point out that the module descriptions need to be complete and that there needs to be a module description for each course. Currently, several module descriptions are missing, e.g. for the internships in the Bachelor's programmes and for the research activities (Master's thesis and its preparation) in the Master's programmes. It would also be useful to combine all module descriptions in a single module handbook for each programme. This module handbook should

also have a list of content. Additionally, the module descriptions should be linked with the respective study plan on the programmes' homepages. Moreover, the workload calculation needs to be checked as the time students need for self-studies is only estimated and seems too low for several courses (see criterion 1.5).

Finally, the experts point out that the literature references in the module descriptions should be updated, and more English literature references should be used.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Sample Transcript of Records for each degree programme
- Sample Degree Certificate for each degree programme
- Sample Diploma Supplement for each degree programme

Preliminary assessment and analysis of the experts:

The experts confirm that the students of all degree programmes under review are awarded a Degree Certificate, a Transcript of Records, and a Diploma Supplement after graduation. The Diploma Supplement contains all required information about the degree programme. The Transcript of Records lists all the courses that the graduate has completed, the achieved credits, grades, and cumulative GPA.

Criterion 4.3 Relevant rules

Evidence:

- Self-Assessment Report
- All relevant regulations as published on the university's webpage

Preliminary assessment and analysis of the experts:

The experts confirm that the rights and duties of both FDU and the students are clearly defined and binding. All rules and regulations are published on the university's website, and the students receive the course material at the beginning of each semester. However, the experts point out that currently, there are no separate homepages for the four study programmes. As it is important that all stakeholders are able to access the essential infor-

mation about the study programmes (profile, learning outcomes, study plan, module description), the experts expect FDU to design separate homepages (English, Uzbek, and Russian) for all four study programmes, which include the before mentioned information.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 4:

The experts appreciate that FSU will update the module descriptions to incorporate contemporary international literature references. All teaching staff have been tasked with reviewing the module descriptions and it is now strictly required that at least 60–70% of the core reading materials have been published within the last 5–10 years. All updated module descriptions will be submitted to the Faculty Council for approval by the end of June 2026. The experts expect to receive the updated module descriptions in the further course of the accreditation procedure. This also concerns the correct display of students' total workload and the awarded ECTS points (see criterion 1.5).

The experts point out that there are still no distinctive English homepages for each of the four study programmes. This needs to be redeemed and each homepage should include the essential information about the respective study programme (intended learning outcomes, profile, study plan, and link to the module descriptions).

The experts consider criterion 4 to be mostly fulfilled.

5. Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Sample surveys for students and employers
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The highest academic board at FDU is the University Council, which is responsible for implementing and supervising all academic processes at FDU. The Rector of FDU is the Chairman of the University Council. Vice-rectors, deans, senior university professors, a student, and leaders of public organisations are its members.

regulations. This includes monitoring and discussing problems of students, the quality of education, and the learning environment. At the same time, it carries out activities aimed at supporting and encouraging students to participate at activities that help to develop students' intellectual and creative abilities.

The Youth Union at FDU plays a pivotal role in representing and supporting the student body. One of its primary tasks is to protect students' rights and interests by addressing their concerns within the university framework through their representatives in the University Council and the Community Council. In addition, the Youth Union focuses on organising extracurricular and social activities and on involving students in them.

Monitoring of university education quality is carried out by the Internal Control Department and the Spirituality and Enlightenment Department. The department's regulations are approved by the University Council. One of the goals of the departments is to evaluate the compliance of students' knowledge with the expected educational standards, control the quality of the educational processes, organise internal quality assessments, identify factors that negatively affect the quality of education, and take measures to eliminate and prevent them.

In order to evaluate the quality of the educational processes at FDU, the Internal Control Department and the Spirituality and Enlightenment Department conduct surveys with students, teachers, and employers.

Satisfaction surveys to gather feedback from students are conducted online at the end of each semester. Students assess various aspects such as quality of course work, soft skills, planning, student involvement, teaching and learning methods, and course descriptions in each enrolled course. Giving feedback on the classes is compulsory for the students. This way, student can offer insights on the course content, lecturers, and their overall teaching and learning experience. This platform allows students to contribute feedback on the course's quality and its alignment with their learning requirements.

The results of the survey are discussed and analysed in the meetings of the Faculty's Scientific Council. Any shortcomings identified in the courses are evaluated and possibly resolved during these meetings. The Internal Control Department and the Spirituality and Enlightenment Department prepare an analytical report on the basis of the data collected and submit the final conclusions to the Rector of the University. In accordance with the Rector's instructions, the results of the survey are made available to the University Council, but individual names will not be disclosed, and the results will be presented in summary form. The results of the survey will also be communicated to students. In addition to formal evaluations, students are encouraged to provide verbal feedback directly to their teachers, which is then discussed in class. Additionally, students at FDU can also give direct feedback

to the Rector by using his Telegram channel and by participating in face-to-face meetings. These mechanisms allow students to directly submit suggestions, complaints, or proposals for consideration by the rector.

When asked about their satisfaction with evaluations and general quality management at FDU, students confirm that evaluations take place regularly and that the results are communicated to them. They state that their critical points are recognised by the university and that changes are made to the programmes on this basis.

Similar to the student evaluation process, annual surveys are conducted with partners from high schools and other educational institutions. FDU records their recommendations regarding the theoretical and practical training as well as about the internships. In addition, the employers explain during the audit interviews that all of them are in contact with FDU and are regularly invited to meetings to give their feedback on the programmes and on the needs of the job market. The employers indicate that their suggestions are usually incorporated into the programmes and that they are satisfied with the way they are involved in further developing the programmes. Moreover, they confirm that they are in general satisfied with the graduates' qualification profile.

With respect to job opportunities and professional careers, FDU is well informed about their graduates. As all employers in Uzbekistan also use HEMIS (Higher Education Management System) to register their employees, the government knows about the data from the job market and where graduates find jobs. This digital information system includes "Administrative management", "Educational process", "Scientific activity" and "Financial management" modules. This data is also available to the universities.

As the experts learn during the audit, due to population growth, there is an increasing number of pupils and consequently a rising demand for teachers. Uzbekistan needs about 4,000 new teachers per year. As a consequence, the graduates have very good job opportunities as high school teachers and several Master's graduates work as researchers or are enrolled in PhD programmes.

The experts gain the impression that the quality assurance system of FDU is well designed and ensures high quality and continuous further development of the study programmes. The feedback of all stakeholders is taken into account by the programme coordinators and changes are made instantly. The experts appreciate that there is good and fruitful cooperation between the external stakeholders (employers, alumni) and the university and confirm that FDU regularly monitors and reviews the degree programmes to ensure that they achieve the objectives set for them and responds to the needs of the students.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 5:

FSU does not comment on this criterion in its statement.

The experts consider criterion 5 to be fulfilled.

D Additional Documents

Before preparing their final assessment, the experts ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

- none

E Comment of the Higher Education Institution (24.04.2026)

Fergana State University provides the following statement:

Deficiency No. 1. The level of academic mobility among teaching staff and students is low and must be more actively encouraged. The number of international partnerships and scholarships should be increased, and in particular the opportunities for postgraduate (Master's) students to study abroad for a defined period must be expanded.

Response: Enhancing academic mobility is considered one of the priority tasks at this time. To this end, international partnerships are being developed to broaden the participation of teaching staff and Master's students; cooperation with effective foreign higher education institutions is being strengthened, and new collaborative directions are being established. In addition, a database of international grants, scholarships and short-term programmes is being compiled and systematically communicated to students and teaching staff, with practical support for the application process being strengthened.

The University's 2026–2030 Strategy also provides for the development of mobility programmes. Within this strategy, the establishment of fully English-medium study groups by 2030 is envisaged. To this end, a Language Centre has been established within the university. Furthermore, the university is currently recruiting fellow researchers and fellow professors such as **Amaël Borzée**, with a target of at least 10 per cent of such appointments. The goal of increasing the proportion of international students to 5 per cent has also been set. Special attention is being given, in particular, to expanding opportunities for Master's students to study abroad, undertake academic internships and engage in knowledge exchange. Existing partnership agreements are being directed specifically towards measurable academic exchange outcomes.

In due course, academic mobility indicators will continue to be incrementally increased through close cooperation between faculties and partner foreign institutions.

Deficiency No. 2. It is advisable to develop the English language competencies of both teaching staff and students.

Response: The faculty community fully acknowledges that improving the level of English language proficiency is the most essential means of enhancing not only academic mobility

but also the effectiveness of working with international scientific databases (Scopus, Web of Science) and engaging with contemporary literature.

Practical steps have been taken at the university to develop the foreign language competencies of teaching staff and students in a systematic and continuous manner:

1) In order to address the specific need identified by the experts, a dedicated "**Language Centre**" has been established within the university. Specialists at the Centre have developed tailored curricula and modules that take into account the current language level of both teaching staff and students.

2) A mechanism has been created to organise language learning without disrupting regular teaching and working schedules. At present, faculty members are actively attending classes at the Language Centre in accordance with timetables adapted to their individual work plans and daily schedules.

3) Classes at the Language Centre are directed not only towards General English but also towards academic purposes. In particular, researchers and teaching staff are developing skills in reading and analysing foreign-language literature and in preparing academic articles in accordance with the international IMRAD standard.

The Language Centre has commenced full operations, with the first groups of teaching staff currently continuing their studies in the 2025/2026 academic year. From the 2026/2027 academic year, the reach of the Centre will be expanded to include mass enrolment of students and postgraduates.

At Fergana State University, 26% of the teaching staff—253 out of 959 professor-teachers—hold recognized language proficiency certificates. Within the Faculty of Natural Sciences (Chemistry and Biology), 10 out of 55 academic staff members possess such certifications.

Deficiency No. 3. A separate English-language web page must be created for each of the four degree programmes. All stakeholders must have open access to key information about the degree programmes (profile, learning outcomes, curriculum, module descriptions).

In order to address this deficiency, separate English-language web pages have been created for each degree programme. These pages contain all key information relevant to stakeholders, including the degree programme profile, learning outcomes, curricula, and module (course) descriptions, presented in a complete and systematic manner.

Deficiency No. 4. Module descriptions must include information on students' total workload and the weighting of each assessment type in the final grade. Complete module descriptions for all courses must be provided.

Response: The degree programme management team fully acknowledges that transparency of students' total workload and assessment criteria in module descriptions is a fundamental principle of the ECTS system. Ensuring that this information is open and comprehensible to all stakeholders is a priority task.

At present, the following practical measures have been initiated to address the experts' concern and align the system with international standards:

1) A unified module description (Syllabus template) has been developed for all courses within the faculty. The new template strictly stipulates that the total workload required per credit must be stated in explicit hours (for example, 1 ECTS = 30 hours of workload), covering both contact hours and independent study hours.

2) The weighting of each assessment type in the final grade, expressed as a percentage, is being entered into all module descriptions. For example, for the natural sciences block: Midterm examination — 20%, practical/laboratory work and independent study — 30%, final examination — 50%; the weighting of each assessment component is being stated explicitly.

3) Module descriptions for all courses across the four degree programmes are being rewritten in accordance with the new template. In parallel, the process of translating these documents into English is also being carried out to ensure the openness of the information.

The process of consolidating and approving all updated module descriptions into a unified database will be completed by the end of June 2026. From the 2026/2027 academic year, all teaching activities will be conducted solely on the basis of new syllabi in which workload and assessment weightings are fully disclosed. The complete catalogue in English will be published on the website by the end of June.

Deficiency No. 5. A compulsory final project (Bachelor's thesis/capstone project) must be introduced in Bachelor's degree programmes. This project should serve to engage students in academic research activities.

Response: The faculty fully supports the experts' conclusion regarding the importance of a compulsory final research project in Bachelor's programmes. Systematically engaging students in empirical research activities and developing their ability to apply theoretical knowledge in practice is one of the priority directions for ensuring the quality of education.

In order to ensure the implementation of the experts' conclusions and the Order No. 499 of the Minister of Higher Education, Science and Innovation of the Republic of Uzbekistan dated 10 December 2025, the following systematic measures are being carried out within the faculty:

This 100% compulsory Bachelor's Thesis system will be fully implemented for final-year students from the 2026/2027 academic year. The new research topic bank currently being formed will be announced and presented to students at the beginning of the next academic year. *(Supporting documentation to be appended.)*

Deficiency No. 6. The time students spend on independent study must be clarified, for example by incorporating relevant questions into end-of-semester satisfaction surveys.

Response: The faculty fully acknowledges that the fair and accurate distribution of students' actual workload within the ECTS framework, as well as its continuous monitoring, is one of the most critical stages in guaranteeing the quality of education.

At present, the following mechanism is being introduced in order to measure the time students devote to independent study and to align the volume of credits in the curriculum with actual practice:

1) A new block focused specifically on independent study workload has been added to the traditional end-of-semester questionnaire administered at the university. In particular, the following questions have been incorporated into the survey:

On average, how many hours per week did you spend preparing the independent study tasks assigned for this module?

Were the independent study hours indicated in the syllabus proportionate to the time you actually spent?

2) The survey results will be statistically analysed at departmental council meetings. If the measurement results indicate that the time a student spent on independent study differs significantly (either considerably more or less) from the ECTS credits allocated to the subject, the volume of assignments and credits in the module descriptions will be realigned for the following academic year.

The updated survey form has been approved and will be administered in full to all Bachelor's and Master's students at the end of the spring semester of the current 2025/2026 academic year (June 2026). The findings will be reviewed in August 2026, and workloads for relevant subjects will be optimised accordingly.

Deficiency No. 7. Laboratory safety measures must be brought into compliance with international standards (evacuation exit signs, safety instructions, eye-wash stations, emergency showers, safety cabinets, etc.).

Response:

Evacuation exit routes and corresponding signage in all laboratory rooms have been thoroughly reviewed, updated in line with international standards, and installed in appropriate locations.

Safety instructions have been revised and displayed in clearly visible areas across all laboratories. Laboratories have also been equipped with eye-wash stations and emergency showers.

The installation of safety cabinets is currently in progress and is expected to be completed in the upcoming academic year.

Deficiency No. 8. Fergana State University does not have a microteaching laboratory; such a laboratory should enable teaching staff and students to observe and analyse mock teaching sessions.

Response: The faculty acknowledges the invaluable role of microteaching technologies in training prospective biology and chemistry teachers, as well as in developing the pedagogical competence of early-career teaching staff. The need to create a dedicated environment for students and teaching staff to conduct, observe and reflect upon mock lessons is fully supported.

At present, practical work has commenced at the university level to establish the micro-teaching laboratory:

1) A dedicated room is being allocated within the faculty's teaching building for the micro-teaching laboratory. This room will be adapted for small-group work and lesson observation.

2) A budget estimate is being developed to equip the room with the necessary technology. This includes the procurement of PTZ video cameras capable of recording lessons from multiple angles, microphones for clear recording of both teacher and student speech, an interactive whiteboard (Smart Board), and a large-screen monitor/projector for collaborative analysis of recordings.

The procurement and installation of equipment is planned to be completed by the end of August 2026. The laboratory will be fully operational from the beginning of the 2026/2027 academic year (September).

Deficiency No. 9. The reading lists in module descriptions must be updated and the proportion of English-language sources must be increased.

Response: In rapidly developing fundamental disciplines such as biology and chemistry, the continuous updating of teaching materials is the foundation of quality education. The faculty team fully endorses the experts' recommendation to actively incorporate contemporary, and in particular English-language international, sources into reading lists, and regards this as a priority task. At present, the following systematic measures have been initiated to align the teaching materials base with international standards:

1) All teaching staff have been tasked with reviewing the syllabi for their respective subjects (modules). It is now strictly required that at least 60–70% of the core reading materials have been published within the last 5–10 years.

2) Relevant scholarly articles published in reputable journals indexed in the Scopus and Web of Science international databases are being incorporated into the reading lists of course modules. It has been established that at least 30–40% of teaching materials must consist of original English-language sources.

3) In order to ensure that teaching staff themselves can work with these databases before introducing foreign-language materials to students, internal training seminars are being organised at departmental level on the effective use of international scientific databases and the integration of IMRAD-structured articles into the teaching process.

All updated module descriptions (Syllabi) reflecting the revised reading lists will be submitted to the Faculty Council for approval by the end of June 2026. From the autumn semester of the 2026/2027 academic year, all courses will be taught using these updated and internationally enriched reading lists.

Deficiency No. 10. Final examinations must also take into account students' practical skills in laboratory work.

Response: Our university fully supports the experts' conclusion that assessing only the level of theoretical knowledge in the biology and chemistry programmes is insufficient. Practical laboratory skills play a decisive role in ensuring graduates' readiness for the labour market. At present, the process of introducing amendments to syllabi and assessment criteria has commenced. The following procedure is being introduced into the final assessment system for all specialist subjects containing laboratory and practical components:

1) 20–30% of the total marks in the final examination will be allocated specifically to the demonstration of practical/laboratory skills.

2) During the final examination, students will be required to perform specific practical tasks (for example: preparing and analysing specimens under a microscope, working safely with chemical reagents, or carrying out biometric calculations on obtained biological data).

3) In order to prevent subjectivity on the part of examiners, step-by-step assessment criteria (rubrics) are being developed for each practical skill.

The new practical assessment system will be piloted in selected subjects (zoology, molecular biology, inorganic chemistry, analytical chemistry) during the final examinations of the spring semester of the 2025/2026 academic year (June 2026). From the autumn semester of the 2026/2027 academic year, it will be fully implemented across all courses and laboratory subjects.

F Summary: Expert recommendations (07.05.2026)

Taking into account the additional information and the comments given by Fergana State University, the experts summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology Education	With requirements for one year	-	30.09.2031
Ma Biology Research and Education	With requirements for one year	-	30.09.2031
Ba Chemistry Education	With requirements for one year	-	30.09.2031
Ma Chemistry Research and Education	With requirements for one year	-	30.09.2031

Requirements

For all degree programmes

- A 1. (ASIIN 3.2) All laboratories need to follow international standards with respect to safety measures.
- A 2. (ASIIN 1.5) Verify the time students need for self-studies e.g. by putting a respective question in the satisfaction surveys that are conducted at the end of the semester.
- A 3. (ASIIN 4.1) Rewrite the module descriptions to include information about the students' total workload and the contribution of each exam to the final grade.
- A 4. (ASIIN 4.1) Provide module descriptions for all courses.
- A 5. (ASIIN 4.3) Provide separate English homepages for each of the study programmes. All stakeholders need to have access to the essential information about the degree programmes (profile, learning outcomes, study plan, module descriptions).

For the Bachelor's programmes

- A 6. (ASIIN 1.3, 2) Introduce a compulsory final project (Bachelor's thesis) to the curriculum of the Bachelor's programmes. The final project should introduce students to research activities.

Recommendations

For all degree programmes

- E 1. (ASIIN 1.3) It is recommended to further promote teachers' and students' academic mobility and to establish more international cooperations especially in the area of teacher education.
- E 2. (ASIIN 3.1) It is recommended to improve students' and teachers' English proficiency.

G Comment of the Technical Committees (09.06.2026)

Technical Committee 09 – Chemistry, Pharmacy (09.06.2026)

Assessment and analysis for the award of the ASIIN seal:

The experts have proposed six requirements. These relate to safety standards in the laboratories, the verification of the workload for students, module descriptions, websites and the introduction of a compulsory bachelor's thesis. In addition, the experts have put forward two recommendations concerning academic mobility and English language proficiency. The Technical Committee discusses the procedure and concurs with the assessment of the experts.

The Technical Committee 09 – Chemistry, Pharmacy recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemistry Education	With requirements for one year	-	30.09.2031
Ma Chemistry Research and Education	With requirements for one year	-	30.09.2031

Technical Committee 10 – Life Sciences (09.06.2026)

Assessment and analysis for the award of the ASIIN seal:

The experts have proposed six requirements. These relate to safety standards in the laboratories, the verification of the workload for students, module descriptions, websites and the introduction of a compulsory bachelor's thesis. In addition, the experts have put forward two recommendations concerning academic mobility and English language proficiency. Following a brief discussion, the Technical Committee approves the proposed requirements and recommendations.

The Technical Committee 10 – Life Sciences recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology Education	With requirements for one year	-	30.09.2031
Ma Biology Research and Education	With requirements for one year	-	30.09.2031

H Decision of the Accreditation Commission (26.06.2026)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Commission discusses the procedure and decides to accredit the study programmes with six requirements and two recommendations. Thus, they do not make any changes to the experts' and TC's suggestions.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology Education	With requirements for one year	-	30.09.2031
Ma Biology Research and Education	With requirements for one year	-	30.09.2031
Ba Chemistry Education	With requirements for one year	-	30.09.2031
Ma Chemistry Research and Education	With requirements for one year	-	30.09.2031

Requirements

For all degree programmes

- A 1. (ASIIN 3.2) All laboratories need to follow international standards with respect to safety measures.
- A 2. (ASIIN 1.5) Verify the time students need for self-studies e.g. by putting a respective question in the satisfaction surveys that are conducted at the end of the semester.
- A 3. (ASIIN 4.1) Rewrite the module descriptions to include information about the students' total workload and the contribution of each exam to the final grade.
- A 4. (ASIIN 4.1) Provide module descriptions for all courses.
- A 5. (ASIIN 4.3) Provide separate English homepages for each of the study programmes. All stakeholders need to have access to the essential information about the degree programmes (profile, learning outcomes, study plan, module descriptions).

For the Bachelor's programmes

- A 6. (ASIIN 1.3, 2) Introduce a compulsory final project (Bachelor's thesis) to the curriculum of the Bachelor's programmes. The final project should introduce students to research activities.

Recommendations

For all degree programmes

- E 1. (ASIIN 1.3) It is recommended to further promote teachers' and students' academic mobility and to establish more international cooperations especially in the area of teacher education.
- E 2. (ASIIN 3.1) It is recommended to improve students' and teachers' English proficiency.

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Biology Education:

Learning outcomes
LO 1. Designs a biology lesson in accordance with the goals of secondary education, applies modern teaching methods and visual aids to develop students' scientific competencies, and evaluates the learning outcomes.
LO 2. Analyzes the role of key events and reforms in Uzbekistan's recent history in shaping national identity and modern statehood.
LO 3. Analyzes the historical development, philosophical-theoretical aspects, and social functions of world religions, and classifies them based on specific criteria.
LO 4. Analyzes the age-specific physiological characteristics and hygiene needs of children and plans health-promoting activities to strengthen their physical well-being.
LO 5. Organizes and effectively manages students' collective and individual project-based activities in Biology, taking into account their age characteristics.
LO 6. Comparatively analyzes the advantages and disadvantages of various teaching methods and technologies (including interactive and digital) to solve a specific didactic task and meet learners' needs, and justifies the selection of the most appropriate one.
LO 7. Creates a safe digital learning environment for learners, and teaches them to critically analyze information in the modern media space and adhere to the rules of information hygiene.
LO 8. Effectively communicates orally and in writing on professional and academic topics in Uzbek (Russian) and foreign languages, and analyzes texts related to their field of specialization.
LO 9. Systematically analyzes the structure, function, and diversity of living organisms and ecosystems, and develops scientifically-grounded solutions for the conservation, restoration, and sustainable use of biological resources.
LO 10. Identifies key insect species in agriculture and forestry based on their morphological and biological characteristics, analyzes their ecological impact, and develops integrated pest management (IPM) strategies.
LO 11. Analyzes the relationship between the anatomical-morphological structure of plants and their physiological life processes (nutrition, respiration, growth, development), and applies this knowledge to explain the patterns of plant diversity and distribution.
LO 12. Analyzes the structure of the human body at the cellular, histological, and anatomical levels in systemic connection with its physiological functions, and explains the operating mechanisms of organ systems in normal and pathological conditions.

LO 13. Applies the fundamental principles and methods of higher mathematics, physics, and chemistry to model biological processes and systems and to analyze biological data.
LO 14. Analyzes the molecular and biochemical mechanisms of heredity and variation in connection with the classical laws of genetics, and applies this knowledge to explain achievements in breeding (varieties, breeds, strains).
LO 15. Selects, applies, and evaluates the reliability of results from appropriate modern biotechnological (experimental) and bioinformatic (computational) methods to solve a biological research problem.
LO 16. Analyzes vital processes in living systems (biomolecules, cells, organisms) based on the fundamental laws of physics and chemistry, and explains the underlying biophysical and biochemical mechanisms.
LO 17. Analyzes the metabolic processes of microorganisms at the biochemical level and diagnoses the changes in cellular metabolism resulting from viral infection at the molecular level.
LO 18. Analyzes the stages of germ cell development (gametogenesis), fertilization, and the histological (tissue) and organogenetic development of the embryo, and explains the underlying cellular mechanisms of these processes.
LO 19. Evaluates ecological problems (including anthropogenic factors) affecting the plant world and ecosystems, and, based on the principles of botany and conservation biology, develops scientifically-grounded strategies for preserving plant biodiversity.
LO 20. Cultivates microorganisms in laboratory nutrient media, identifies them using modern microbiological and molecular-genetic methods, and quantifies their abundance.
LO 21. Analyzes the national and international legal frameworks for nature protection and, based on the principles of organismal distribution, proposes practical measures for biodiversity conservation.
LO 22. Analyzes the philosophical foundations of the development of social-humanitarian and natural sciences, and applies the principles of critical thinking to form a scientific worldview.
LO 23. Creates an inclusive and safe learning environment for learners with special educational needs and adapts the educational process to their individual characteristics.
LO 24. Analyzes modern trends in the field of education and plans a personal learning trajectory for continuous professional development.

The following **curriculum** is presented:

BSc in BIOLOGY

CURRICULUM

FIRST YEAR

Autumn Semester

Course Name	Credit
Higher mathematics	4
Recent History of Uzbekistan	4
Botany	5
General Psychology	6
General Chemistry and Physics	5
Cytology, Histology and Embryology	6

Spring Semester

Course Name	Credit
Human Anatomy	4
General Chemistry and Physics	4
Botany	5
Philosophy	4
Uzbek (Russian) language	4
Media literacy and information culture	5
Cytology, Histology and Embryology	2
Field Practice (Botany)	2

SECOND YEAR

Autumn Semester

Course Name	Credit
General pedagogy	4
Zoology	5
Microbiology and Virology	5
Biochemistry and Molecular Biology	4
Human and Animal Physiology	6
Fundamentals of Genetics and Genomics	6

Spring Semester

Course Name	Credit
General pedagogy	4
Zoology	5
Microbiology and Virology	5
Biochemistry and Molecular Biology	4
Fundamentals of Genetics and Genomics	4
Animal Ethology	4
Biometrics	
Fauna of the Fergana Valley	2
Fauna of Uzbekistan	
Field Practice (Zoology)	2

THIRD YEAR

Autumn Semester

Course Name	Credit
Solving Problems and Exercises in Biology	4
Biophysics and Bioinformatics	4
Biotechnology	6
Fauna of the Fergana Valley	2
Fauna of Uzbekistan	
Biogeography	4
Hydrobiology	
Modern research methods in biology	4
Environmental Biology	
General entomology	6
General ichthyology	

Spring Semester

Course Name	Credit
Solving Problems and Exercises in Biology	4
Biophysics and Bioinformatics	4
Plant Physiology	6
Methods of Teaching Biology	4
Religious Studies	4
Preparation of Visual Aids for Biology	6
Teaching "Science" at school	
Industrial Internship	2

FOURTH YEAR

Autumn Semester

Course Name	Credit
Trends and modern approaches in continuing education	4
Inclusive education. Hospital pedagogy	4
Methods of Teaching Biology	4
Physiology and Hygiene of Children	6
Foreign languages in the professional field (English)	5
Foreign languages in the professional field (German)	
Conservation Biology	7
Conducting work in the state language	

Spring Semester

Course Name	Credit
Qualifying practice	22
Final state certification	8

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme Biology Research and Education:

Learning Outcomes
LO 1. Formulates a scientific hypothesis for a specific biological research problem and develops an appropriate research methodology and data collection plan. Analyzes the resulting research data using modern biostatistical methods and justifies the scientific conclusions.
LO 2. Critically evaluates current global and regional problems in biology by integrating contemporary literature and scientific debates, and proposes promising research directions to address them.
LO 3. Develops a curriculum (syllabus), teaching strategies, and assessment methods for a specific module or course in biology at the higher education level, using modern pedagogical and digital tools, and justifies the design with pedagogical theory.
LO 4. Systematically analyzes the levels, patterns, and threats to biodiversity, and based on this analysis, develops targeted conservation strategies for endangered species and habitats.
LO 5. Analyzes biological data from ecological, genetic, and taxonomic research using modern biostatistical methods, interprets the results in a biological context, and presents them according to scientific standards.
LO 6. Evaluate the scientific basis, techniques and goals of plant introduction; design and manage plant acclimatization projects in various ecological conditions.
LO 7. Systematically analyzes the taxonomy, ecology, and adaptive traits of mammals and amphibians (herpetofauna) to evaluate their role in natural ecosystems and their conservation status.
LO 8. Analyzes the morphological, ecological, and behavioral traits of insects; evaluates their economic importance and develops integrated pest management strategies.
LO 9. Diagnoses infectious and non-infectious fish diseases in aquaculture, analyzes their epidemiology, and proposes effective treatment and prevention strategies.
LO 10. Analyzes the spatial distribution, density, structure, and ecological interactions of animal populations, and based on this analysis, develops scientifically-grounded strategies for population management.

The following **curriculum** is presented:

MSc in Biology

CURRICULUM

FIRST YEAR

Autumn Semester

Course Name	Credit
Research methodology	6
Methodology of teaching special subjects	6
Current problems of biology	6
Biodiversity	6
Scientific and pedagogical work and qualification practice	4
Research work , master's degree dissertation preparation and protection to do	2

Spring Semester

Course Name	Credit
Biostatistics	6
Plant introduction	6
Theriology and herpetology	6
Protozoology	
Scientific and pedagogical work and qualification practice	4
Research work , master's degree dissertation preparation and protection to do	8

SECOND YEAR

Autumn Semester

Course Name	Credit
Practical Entomology	5
Fundamentals of Biodegradation	
Fish diseases	5
Fundamentals of ichthyological research	
Ecology of populations	4
Ecology of fishes	
Zoogeography	4
General parasitology	
Scientific and pedagogical work and qualification practice	4
Research work , master's degree dissertation preparation and protection to do	8

Spring Semester

Course Name	Credit
Scientific and pedagogical work and qualification practice	8
Research work , master's degree dissertation preparation and protection to do	22

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Chemistry Education Education:

Learning Outcomes
LO 1. As a result of studying the subject, graduate demonstrate comprehensive knowledge of fundamental mathematics and general physics, apply mathematical models and physical laws to explain chemical phenomena, and develop analytical thinking for solving chemistry-related problems.
LO 2. As a result of studying the subject, graduate apply philosophical and historical perspectives to critically analyze the development of science and chemistry, evaluate the contribution of cultural and intellectual traditions, and use this understanding to strengthen professional and ethical competence.
LO 3. As a result of studying the subject, graduate communicate effectively in academic and professional contexts in Uzbek/Russian and at least one foreign language, prepare scientific documents, and participate in international collaboration with adherence to academic integrity.
LO 4. As a result of studying the subject, graduate demonstrate knowledge of pedagogy and psychology, apply didactic methods in chemistry education, design adaptive learning environments, and assess student performance using modern teaching strategies.
LO 5. As a result of studying the subject, graduate demonstrate knowledge of religion and culture, apply ethical principles in professional practice, and evaluate information critically through media literacy and responsible communication.
LO 6. As a result of studying the subject, graduate demonstrate systematic knowledge of inorganic chemistry, apply theoretical principles to classify substances, explain reactivity, predict outcomes of chemical reactions, and conduct laboratory experiments with proper interpretation of results.
LO 7. As a result of studying the subject, graduate use analytical chemistry methods, including qualitative and quantitative analysis, apply gravimetric, titrimetric, and instrumental techniques to determine composition, and evaluate results with statistical accuracy.
LO 8. As a result of studying the subject, graduate demonstrate theoretical and practical competence in organic chemistry, explain reactivity and mechanisms of organic compounds, design and perform synthesis experiments, and evaluate outcomes with regard to yield, purity, and safety.
LO 9. As a result of studying the subject, graduate apply principles of physical chemistry to interpret thermodynamic, kinetic, and electrochemical processes, design and perform relevant laboratory experiments, and critically evaluate experimental data.

LO 10. As a result of studying the subject, graduate explain and apply colloid chemistry concepts, analyze surface phenomena and dispersed systems, and apply this knowledge in experimental and industrial contexts.
LO 11. As a result of studying the subject, graduate demonstrate competence in computer modeling of chemical structures and processes, use modern ICT tools and simulation software, and compare modeling results with experimental data.
LO 12. As a result of studying the subject, graduate demonstrate knowledge of complex and coordination compounds, explain their properties and structures, design experiments to study their reactivity, and evaluate applications in catalysis and materials science.
LO 13. As a result of studying the subject, graduate demonstrate advanced knowledge of polymer chemistry, including high molecular compounds, special functional polymers, and biomedical materials, apply theoretical and experimental methods to analyze properties, and design laboratory projects related to polymer synthesis and characterization.
LO 14. As a result of studying the subject, graduate identify and analyze biologically active compounds from natural sources, apply methods of separation and purification, evaluate biological activity using experimental and theoretical approaches, and critically assess their role in pharmaceutical and biotechnological applications.
LO 15. As a result of studying the subject, graduate apply chemical principles to assess environmental impact, sustainability, and chemical safety, analyze pollutants in air, water, and soil, and propose strategies for sustainable development and green chemistry.
LO 16. As a result of studying the subject, graduate demonstrate understanding of applied chemistry fields, including oil, gas, fuels, and industrial technology, analyze processes and materials used in chemical industries, and evaluate their efficiency and safety.
LO 17. As a result of studying the subject, graduate design and implement effective teaching strategies in chemistry education, apply innovative pedagogical approaches, organize extracurricular activities, and develop problem-solving competence in graduate.
LO 18. As a result of studying the subject, the graduate demonstrates fundamental and applied knowledge of complex compounds, analyzes molecular structures and chemical behavior using theoretical and instrumental methods, designs and conducts independent experiments, interprets results critically, and communicates scientific findings in line with professional and ethical standards.
LO 19. Demonstrate readiness for lifelong learning, apply critical thinking and independent work skills, participate effectively in research and professional projects, and pursue continuous self-development in chemistry and related fields.

The following **curriculum** is presented:

BSc in CHEMISTRY

CURRICULUM

FIRST YEAR

Autumn Semester

Course Name	Credit
Higher mathematics	4
The newest history of Uzbekistan	4
History of Chemistry	6
General Psychology	6
General physics	5
Inorganic chemistry	5

Spring Semester

Course Name	Credit
Higher mathematics	4
General physics	5
Inorganic chemistry	7
Philosophy	4
Uzbek (Russian) language	4
Media literacy and information culture	4
Chemists practicum	2

SECOND YEAR

Autumn Semester

Course Name	Credit
General pedagogy	4
Analytical chemistry	6
Physical chemistry	6
Computer modeling in chemistry	4
Coordination chemistry	4
Structure of matter	6

Spring Semester

Course Name	Credit
Religious studies	4
General pedagogy	4
Analytical chemistry	6
Physical chemistry	6
Physical research methods	4
Chemistry of goods	4
Bioinorganic chemistry	
Chemists practicum	2

THIRD YEAR

Autumn Semester

Course Name	Credit
Organic chemistry	6
Colloid chemistry	6
Bioorganic chemistry	6
Chemistry of higher molecular compounds	4
Ecological chemistry	4
Environmental chemistry	
Chemistry of oil and gas	4
Chemistry of alternative fuels	

Spring Semester

Course Name	Credit
Organic chemistry	6
Chemistry of higher molecular compounds	6
Teaching methodology of chemistry	4
Mechanism of organic reactions	4
Methods of organic synthesis	
Medical chemistry and organic synthesis	4
Toxicological chemistry	
Foreign languages in the professional field (English language)	4
Foreign languages in the professional field (German language)	
Chemists practicum	2

FOURTH YEAR

Autumn Semester

Course Name	Credit
Teaching methodology of chemistry	6
Chemical technology	6
Inclusive education. Hospital pedagogy	4
Trends in continuous education and modern approaches	4
Problem-solving methods in chemistry	5
Extracurricular methods in chemistry	
Polymers with special properties	5
Conducting work in the state language	

Spring Semester

Course Name	Credit
Qualifying practice	22
Final state certification	8

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme Chemistry Research and Education:

Learning Outcomes
LO 1. As a result of studying the subject, graduate demonstrate advanced knowledge of scientific research methodologies, critically analyze contemporary issues in chemistry, and design interdisciplinary projects.
LO 2. As a result of studying the subject, graduate develop and implement modern teaching strategies, integrate digital technologies, and supervise student research practice with academic integrity.
LO 3. As a result of studying the subject, graduate apply modern physicochemical techniques, interpret complex datasets, and ensure accuracy and reproducibility in advanced research.
LO 4. As a result of studying the subject, graduate utilize advanced computer modeling methods, validate computational data with experimental results, and adapt modeling for both scientific and industrial applications.
LO 5. As a result of studying the subject, graduate explain the mechanisms of bioactive compounds, design protocols for their extraction and purification, and evaluate biological activity using advanced techniques.
LO 6. As a result of studying the subject, graduate conduct advanced research in supramolecular and heterocyclic chemistry, design functional molecules, and evaluate their industrial and biomedical applications.
LO 7. As a result of studying the subject, graduate publish research results, collaborate in international projects, and demonstrate commitment to lifelong learning and professional development in chemistry.

The following **curriculum** is presented:

MSc in Chemistry

CURRICULUM

FIRST YEAR

Autumn Semester

Course Name	Credit
Scientific research methodology	6
Special sciences teaching methodology	6
Chemistry modern problems	6
The research modern physicochemical methods	6
Scientific and pedagogical work and qualification practice	4
Research work , master's degree dissertation preparation and protection to do	2

Spring Semester

Course Name	Credit
In chemistry modern computer modeling methods	6
Functional of materials physicist chemical basics	6
Biological active substances impact mechanism	6
High at school chemistry teaching methodology	
Natural from sources biological active substances separation , purification and analysis to do	6
Chemical philosophical problems	
Scientific and pedagogical work and qualification practice	4
Research work , master's degree dissertation preparation and protection to do	2

SECOND YEAR

Autumn Semester

Course Name	Credit
Supramolecular compounds chemistry	6
Chemistry in teaching modern technologies	
Heterocyclic compounds chemistry	6
Organic of substances reaction ability and selectivity	
Scientific and pedagogical work and qualification practice	6
Research work , master's degree dissertation preparation and protection to do	12

Spring Semester

Course Name	Credit
Scientific and pedagogical work and qualification practice	8
Research work , master's degree dissertation preparation and protection to do	22