



CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

---

**EVALUATION REPORT**  
**STUDY FIELD of MICROBIOLOGY**  
at Vilnius University

**Expert panel:**

1. Prof. dr. Laurent Counillon (panel chairperson), academic;
2. Assoc. Prof. dr. Gordana Maravić Vlahoviček, *academic*;
3. Ms. Aistė Baltrušaitytė, *representative of social partners*;
4. Ms. Kristina Kundrotaitė, *students' representative*.

**Evaluation coordinator – Irma Dzikarienė**

Report language – English

© Centre for Quality Assessment in Higher Education

## Study Field Data

Title of the study programme	<b><i>Microbiology</i></b>	<b><i>Microbiology</i></b>
State code	6121DX006	6211DX007
Type of studies	University studies	University studies
Cycle of studies	First-cycle	Second-cycle
Mode of study and duration (in years)	Full-time studies	Full-time studies
Credit volume	240	120
Qualification degree and (or) professional qualification	Bachelor of Life Sciences	Master of Life Sciences
Language of instruction	Lithuanian	Lithuanian
Minimum education required	Secondary education	Secondary education
Registration date of the study programme	14 June 2013	19 May 1997

-----

# CONTENTS

<b>I. INTRODUCTION</b>	4
1.1. BACKGROUND OF THE EVALUATION PROCESS	4
1.2. EXPERT PANEL	4
1.3. GENERAL INFORMATION	5
<b>II. GENERAL ASSESSMENT</b>	6
<b>III. STUDY FIELD ANALYSIS</b>	8
3.1. INTENDED AND ACHIEVED LEARNING OUTCOMES AND CURRICULUM	8
3.2. LINKS BETWEEN SCIENCE (ART) AND STUDIES	17
3.3. STUDENT ADMISSION AND SUPPORT	20
3.4. TEACHING AND LEARNING, STUDENT PERFORMANCE AND GRADUATE EMPLOYMENT	23
3.5. TEACHING STAFF	28
3.6. LEARNING FACILITIES AND RESOURCES	31
3.7. STUDY QUALITY MANAGEMENT AND PUBLIC INFORMATION	33
<b>IV. EXAMPLES OF EXCELLENCE</b>	38
<b>V. RECOMMENDATIONS</b>	39
<b>VI. SUMMARY</b>	41

## I. INTRODUCTION

### 1.1. BACKGROUND OF THE EVALUATION PROCESS

The evaluation of study fields is based on the Methodology of External Evaluation of Study Fields approved by the Director of the Centre for Quality Assessment in Higher Education (hereafter – SKVC) 31 December 2019 Order [No.V-149](#).

The evaluation is intended to help higher education institutions to constantly improve their study process and to inform the public about the quality of studies.

The evaluation process consists of the main following stages: 1) *self-evaluation and self-evaluation report (SER) prepared by Higher Education Institution (HEI)*; 2) *site visit of the expert panel to the HEI*; 3) *production of the external evaluation report (EER) by the expert panel and its publication*; 4) *follow-up activities*.

On the basis of this external evaluation report of the study field SKVC takes a decision to accredit study field either for 7 years or for 3 years. If the field evaluation is negative then the study field is not accredited.

The study field and cycle are **accredited for 7 years** if all evaluation areas are evaluated as exceptional (5 points), very good (4 points) or good (3 points).

The study field and cycle are **accredited for 3 years** if one of the evaluation areas is evaluated as satisfactory (2 points).

The study field and cycle are **not accredited** if at least one of evaluation areas is evaluated as unsatisfactory (1 point).

### 1.2. EXPERT PANEL

The expert panel was assigned according to the Experts Selection Procedure as approved by the Director of Centre for Quality Assessment in Higher Education on 31 December 2019 [Order No.V-149](#). The site visit to the HEI was conducted by the panel on 20<sup>th</sup> of October, 2022.

**Prof. Laurent Counillon (panel chairperson)** *Director of the Life and Health Sciences Graduate School of Université Côte d'Azur (France);*

**Assoc. Prof. Gordana Maravić Vlahoviček,** *University of Zagreb, Faculty of Pharmacy and Biochemistry, Department of Biochemistry and Molecular Biology (Croatia);*

**Ms. Aistė Baltrušaitytė,** *Head of the laboratory, SYNLAB Lietuva UAB (Lithuania);*

**Ms. Kristina Kundrotaitė,** *first cycle student of Biology and genetics at Vytautas Magnus University (Lithuania).*

### 1.3. GENERAL INFORMATION

The documentation submitted by the HEI follows the outline recommended by SKVC. Along with the self-evaluation report and annexes, the following additional documents have been provided by the HEI before, during and/or after the site visit:

No.	Name of the document
1.	-
...	

### 1.4. BACKGROUND OF MICROBIOLOGY FIELD STUDIES AT VILNIUS UNIVERSITY

The programme is hosted by Vilnius University, which is the oldest higher education institution in Lithuania. This University hosts more than 3200 teaching and research staff and about 23000 students. Vilnius university is multidisciplinary as it is composed of 15 academic units (faculties, departments, Institutes; chairs; centres ...) that operate research and studies in the humanities, social, natural, medical and health sciences and technology. It hosts more than 200 undergraduate and graduate programmes, from bachelor to Master and PhD. There are also teaching programs. The University exerts its self-governance based on a classical organisation: Senate, Council (that elect the rector), and the rector.

This program is hosted by the Life Sciences Centre, a new building devoted to Life Sciences in three institutes: the Institute of Biochemistry (BCHI), of Biosciences (BSI) Biotechnology (BTI). This programme was created in 1997, at VU Faculty of Natural Sciences. The Department of Microbiology and Biotechnology is in charge of this programme.

The last external evaluation of the programme was carried out in 2013 for the Master accreditation and it was granted for 6 years. The main comments were pertaining to the contents in microbiology and the number of electives. This had led to a modification in denomination into Microbiology and Biotechnology, that was then reversed to microbiology. In 2019, the programme was then further accredited by the director of the Centre for Quality Assessment of Studies until the present evaluation.

## II. GENERAL ASSESSMENT

*Microbiology* study field and first cycle at Vilnius University is given **positive** evaluation.  
*Study field and cycle assessment in points by evaluation areas*

No.	Evaluation Area	Evaluation of an Area in points*
1.	Intended and achieved learning outcomes and curriculum	3
2.	Links between science (art) and studies	3
3.	Student admission and support	4
4.	Teaching and learning, student performance and graduate employment	3
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Study quality management and public information	4
	<b>Total:</b>	<b>25</b>

\*1 (unsatisfactory) - the area does not meet the minimum requirements, there are fundamental shortcomings that prevent the implementation of the field studies.

2 (satisfactory) - the area meets the minimum requirements, and there are fundamental shortcomings that need to be eliminated.

3 (good) - the area is being developed systematically, without any fundamental shortcomings.

4 (very good) - the area is evaluated very well in the national context and internationally, without any shortcomings;

5 (excellent) - the area is evaluated exceptionally well in the national context and internationally.

*Microbiology* study field and second cycle at Vilnius University is given **positive** evaluation.  
*Study field and cycle assessment in points by evaluation areas*

<b>No.</b>	<b>Evaluation Area</b>	<b>Evaluation of an Area in points*</b>
1.	Intended and achieved learning outcomes and curriculum	3
2.	Links between science (art) and studies	3
3.	Student admission and support	4
4.	Teaching and learning, student performance and graduate employment	3
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Study quality management and public information	4
	<b>Total:</b>	<b>25</b>

\*1 (unsatisfactory) - the area does not meet the minimum requirements, there are fundamental shortcomings that prevent the implementation of the field studies.

2 (satisfactory) - the area meets the minimum requirements, and there are fundamental shortcomings that need to be eliminated.

3 (good) - the area is being developed systematically, without any fundamental shortcomings.

4 (very good) - the area is evaluated very well in the national context and internationally, without any shortcomings;

5 (excellent) - the area is evaluated exceptionally well in the national context and internationally.

### III. STUDY FIELD ANALYSIS

#### 3.1. INTENDED AND ACHIEVED LEARNING OUTCOMES AND CURRICULUM

*Study aims, outcomes and content shall be assessed in accordance with the following indicators:*

*3.1.1. Evaluation of the conformity of the aims and outcomes of the field and cycle study programmes to the needs of the society and/or the labour market (not applicable to HEIs operating in exile conditions)*

*(1) Factual situation*

The microbiology curriculum consists in a Bachelor followed by a Master. It trains bachelor students with a deep knowledge in the different fields of biology plus a solid scientific background that includes chemistry and mathematics. This programme contains 170 credits for “general” compulsory courses, while microbiology compulsory courses represent 25 credits to be added with the 30 credits of the Bachelor thesis that is usually on a microbiology subject (SER Annex 2). There is also a very low number of microbiology electives (5 credits out a total of 70) in the bachelor programme. The master’s organisation is more balanced with 40 credits for compulsory microbiology modules, 30 credits for other compulsory courses, but this time with a large choice of 5 credits among a total of 45 credits microbiology elective courses, to be compared to other electives (choice of 5 in a total of 20 credits).

Taken together, this curriculum trains bachelor students with a very general biology background and well-specialised master students in microbiology. As societies are facing a wide spectrum of issues such as drop in biodiversity, chemical pollution, soil depletion, climate change and possibly others, this requires training very adaptable scientists who may face challenges of very different nature in their career. Hence not overspecializing the students at first but instead giving them a wide scientific background creates a favourable mindset for such challenges. Besides the importance of this general training, the microbiology specialisation at master’s level is also very relevant for the labour market because (i) there is an immense field of applications for microbiology, in industry, agronomy, biotechnologies and (ii) research in microbiology is witnessing a very important evolution notably with the realisation that a very large number of microbial species remain to be identified and with the importance of studying large and complex microbiota. Hence as well reviewed in the SER p9-1 is very relevant to train excellent microbiologists who will then be able to operate both in research as well as in the socioeconomic sector and this curriculum is very well built to do this.



While probably all biology curricula teach microbiology, the present curriculum is fully identified as a microbiology curriculum. This is relatively unique in the whole Baltic and Nordic area (SER; source: Open Vocational Information, Counselling and Guidance System (AIKOS) 6 and the Association of Lithuanian Higher Education Institutions for general admissions (LAMA BPO)) and this originality represents also an asset for students' insertion.

As seen from the monitoring of 2020 student's employment (Career Tracking Information System, SER p61; Table 16 p62), "86.7% of the graduates from the first-cycle Microbiology SP and about 88.9% of the graduates from the second-cycle Microbiology SP one year after graduation work under employment contracts and/or continue studies". This is also a very good indicator that the curriculum meets its objective concerning students' insertion and societal demands (see section 3.4 for a detailed analysis).

## *(2) Expert judgement*

The different needs for very skilled microbiologists are very well identified in the SER; both towards society as well as for future employers in public and private sectors. In this respect the senior management of the curriculum has made valuable efforts in building a programme that can fulfil these needs; as explained both within the SER and during the interviews (interviews with top administration of the programme and, with alumni and employers, 20th of October, 2022). It was very clear during the latter that the employers were very well informed of this programme, were happy to contribute to it and were satisfied with the students' level in general. Taken together, the programme construction and its learning outcomes consider both the present and future societal needs as well as the labour market demand.

This said, there are however points of attention:

- The bachelor programme has a very limited microbiology content that is not compensated by a large choice of microbiology electives, so terming it "Microbiology" can be possibly misleading for some students who may expect larger contents in this field. As many of its courses are mutualised with other bachelor programmes, during the interviews the committee suggested that the Life Sciences bachelors could be grouped within a unique programme.
- During interviews both students' alumni and employers asked for a specific introductory module that would prepare students to work in the private sector. This should not simply consist of company visits or have a job fair format, but instead include specific courses for example on IP, work legislation, entrepreneurship etc...

- The new Molecular biotechnologies curriculum may be too close to the microbiology programme examined here, as many applications of microbiology concern biotechnologies. Of note the present programme was previously called Microbiology-Biotechnologies. While both programmes can be managed together at the HEI level to avoid internal competition (Interview with senior management staff), the risk is nevertheless significant to induce a competition of the graduates to the employers (panel meeting with alumni, employers, social partners). Such internal competition would be pejorative for two programmes from the same institution. The panel therefore suggests that the programme's senior staff should anticipate this possible problem.

### *3.1.2. Evaluation of the conformity of the field and cycle study programme aims and outcomes with the mission, objectives of activities and strategy of the HEI*

#### *(1) Factual situation*

The aims and activities of the HEI are to provide a high degree of research-based education to train not only specialists in different fields, but also enlightened citizens, able to take knowledge-based relevant decisions and to contribute to the well-being of Lithuanian society. In addition to this mission at large, several key values like “cooperative” or “sustainable” are also promoted (SER p12).

In this respect, the curriculum fulfils well these aims because as explained before, the bachelor gives a broad scientific knowledge while the Master trains excellent specialists. During Bachelor, this enables students both to benefit from a wide scientific culture and learn important soft skills that are well in line with the HEI broad aims. In Master's they then gain a deep knowledge that will make them excellent specialists who will be able to contribute to research, or to high-level education, or to bring large added value to companies.

Two other important aspects here are the facts that the students have (i) a significant proportion of autonomous work embedded in each teaching unit (~39 % and 30% contact hours for Bachelor and Master respectively, SER table2 page 16), and (ii) autonomous work sessions for building their research project and then a research laboratory experience gained through their internship. This teaches them autonomy and organisation in conducting their studies and projects as well as the ability to work collectively in groups.

Of note, the HEI aims have been expanded in 2021 by **the new University Strategic Plan** that contains a series of points that can be summarised as follows: (1) Graduates capable of solving societal problems, (2) Research of a high international level; (3) Growing influence of the HEI in the society and the state, (4) Interdisciplinary and international research and studies, (5)

Motivated employees and engaged students, (6) Financial growth through income diversification.

During the interview, the senior staff explained that the strategic plan was very recent and that they did not fully have the time to modify the microbiology programme accordingly. However, it can be seen that it complies very well in both its construction and its implementation to points 1, 2, 4 and 5, while points 3 and 6 have to be considered more at the level of the HEI itself (although very well built and visible programmes can also contribute to these broader aims).

*(2) Expert judgement*

Taken together, the curriculum complies very well to the HEI strategic aims, as it trains scientifically solid students, who will contribute to their own country and society at large, and then specialises in the microbiologists during master, making excellent specialists that can provide their expertise to their employers. Furthermore, the graduates of this curriculum have been trained to be very organised and work by themselves.

Besides the excellent construction that responds well to the criteria, it would have been important to have a clearer indication of the KPIs to ensure that the strategic goals are well fulfilled.

*3.1.3. Evaluation of the compliance of the field and cycle study programme with legal requirements*

*(1) Factual situation*

As seen in the table below, both bachelor and master programmes are fully within the legal requirements.

**Table No. 1** Study Programme’s *Microbiology first cycle* compliance to general requirements for *first cycle study programmes*

<b>Criteria</b>	<b>Legal requirements</b>	<b>In the Programme</b>
Scope of the programme in ECTS	180, 210 or 240 ECTS	240
ECTS for the study field	No less than 120 ECTS	165
ECTS for studies specified by University or optional studies	No more than 120 ECTS	35

ECTS for internship	No less than 15 ECTS	15
ECTS for final thesis (project)	No less than 15 ECTS	15
Contact hours	No less than 20 % of learning	39 and 38% contact for compulsory and electives respectively
Individual learning	No less than 30 % of learning	61 and 62% individual work for compulsory and electives respectively

**Table No. 1.** Study Programmes **Microbiology second cycle** compliance to general requirements for *second cycle study programmes*

<b>Criteria</b>	<b>Legal requirements</b>	<b>In the Programme</b>
Scope of the programme in ECTS	90 or 120 ECTS	120
ECTS for the study field Information Services	No less than 60 ECTS	110
ECTS for studies specified by University or optional studies	No more than 30 ECTS	20
ECTS for final thesis (project)	No less than 30 ECTS	30
Contact hours	No less than 10 % of learning	28% for compulsory and 46% for electives.
Individual learning	No less than 50 % of learning	72% individual learning for compulsory and 64% for electives.

Source: Table 1 pages 13-14 in the SER.

*(2) Expert judgement*

The student's workload is well distributed among the different sectors of activity. In particular, the ratio of contact hours versus individual learning is satisfactory. It would be, in our opinion, counterproductive to increase individual learning at the detriment of contact

hours especially as the teachers are in general well involved and appreciated by the students (Panel meeting with teaching staff and then with the students).

While there has been a significant improvement since the last evaluation with the introduction of electives, their percentage at bachelor's and especially at masters' levels could be greater to allow students to be actors of their own training (see further).

#### *3.1.4. Evaluation of compatibility of aims, learning outcomes, teaching/learning and assessment methods of the field and cycle study programmes*

##### *(1) Factual situation*

The SER and its Annexes 1 & 3 give a detailed description of the modules, their learning outcomes and the assessment methods used for each module. It is obvious that a significant effort has been made to align each course's contents with the corresponding competences and learning outcomes. The teaching/learning methods are ranging between classical contact courses, seminars, to literature-based or problem-solving learning and of course laboratory work and research projects (SER p57). Interestingly, the assessment methods are quite diverse among modules and are noteworthy as they very often depart from the classical written exam and instead consist in reports, presentations, essays, problem-solving tests, data analysis reports etc... (see section 3.4 for further detail).

The SER also indicates that all those activities are at the discretion of the lecturers, who are clearly active in improving their teaching and assessment methods (of note the SER p22 mentions Bloom's Taxonomy). This involvement was confirmed during the panel interview with teaching staff who appeared very motivated towards their students and to continually improve their teaching quality (see section 3.5 for a detailed analysis). The staff also indicated that they had a significant freedom to make their modules contents and methods without complicated procedures and that they were very satisfied with this possibility. The good teaching quality was subsequently confirmed by students. Of note, VU offers pedagogical training that is not mandatory but with very strong incentives to teaching staff to follow it (SER p69 and panel discussion with senior management of the programme). If in a particular case a teacher does not give satisfaction and is not in this positive dynamic, the senior staff does not hesitate to replace him/her (information obtained at the panel meeting with the students), which is commendable.

##### *(2) Expert judgement*

The learning outcomes are well aligned with the teaching and assessment methods. Based on the scientific profile of the lecturers, on the research carried in the Life Sciences centre and on the present socio-economic sector in the field, It also appears that the curriculum is well aligned with the scientific content and the societal needs of the microbiology field. The teaching and senior staff is very well motivated in maintaining and improving this positive alignment.

### *3.1.5. Evaluation of the totality of the field and cycle study programme subjects/modules, which ensures consistent development of competences of students*

#### *(1) Factual situation*

As previously stated, the microbiology curriculum consists in a Bachelor that gives a broad scientific education in Life Sciences but with very little microbiology and a Master that allows a specialisation in this field. As it can also be seen in the Annex 3, all the contents of the teaching modules have declined in terms of skills.

Soft skills are acquired both during the studies themselves but also through dedicated modules open to all University students (e.g. stress management, effective learning, introducing yourself to employers, writing a CV and a cover letter, and simulating a job interview, SER p52). Recently introduced is also the fact that students must choose one elective among all modules opened at the University, in order to expand their knowledge and skills beyond their disciplinary scope (General University Elective Subjects SER Table1)

The facilities in the new Life Sciences building were visited by the panel who witnessed that those are of the highest international standards. Lecture rooms and amphitheatres are up to date and fully equipped as well as the practical work rooms that are very modern and well equipped for wet lab work. The research laboratories for students' internships visited in the same building are also extremely modern and of high quality. The panel also visited the library that also has excellent reading and working conditions as well as significant textbooks collections. As well it provides all online journals and databases necessary for students and research projects (see section 3.6 for a detailed analysis).

Noticeably, there is also a very significant presence of private company partners (Thermo Fisher Scientific Baltics being the largest partner) who also offer important opportunities for internship and provide materials, reagents, and collaborations on research projects.

#### *(2) Expert judgement*

Taken together the presentation of the modules is clearly competence-based, and this goes together with a good awareness that students should acquire a large set of competences within their discipline but also as soft skills. The high standards of installations, equipment, and library contribute to develop high quality competences among the students. The problem (that has already been pointed out before) is the development of competences in the microbiology field, given the low amount that exists at least in the bachelor programme.

### *3.1.6. Evaluation of opportunities for students to personalise the structure of field study programmes according to their personal learning objectives and intended learning outcomes*

#### *(1) Factual situation*

The previous assessment recommended that this curriculum should contain a set of electives and this is now the case as the students can choose electives among a rather large set of modules during their bachelor and master.

At this step those electives represent however a limited number of credits, 35/240 in bachelor and 20/120 in Master (including both contact and self-taught hours). This represents 14.5 and 16.7 17% (Bachelor and Master respectively). Hence these percentages are still too low to consider that students can fully personalise their own curriculum. While a ~15% ratio is understandable for bachelors where a large body of core knowledge has to be gained, the fact that this does not increase for Master is not a satisfactory situation as students have to learn more to make their own choices and as extremely different careers exist in the microbiology field.

#### *(2) Expert judgement*

The panel advises to significantly increase the ratio of electives in Master SP. If it is not possible to address this point given the local strengths, it might be worth seeking collaboration to share electives with other HEIs and possibly among the European Arqus alliance members. This would also enhance the internationalisation of the students which is a great asset for their future careers.

### *3.1.7. Evaluation of compliance of final theses with the field and cycle requirements*

#### *(1) Factual situation*

The principles for preparation of a final thesis in the field of microbiology are clearly defined and indicate all the most important: preparation of the paper, submission of papers for assessment and defence, defence and assessment of theses, publishing final theses, computer check for independence and others. Students preparing final theses can choose topics from various laboratories and the research conducted in them. The final thesis is evaluated by one reviewer (30%), the supervisor (20%) and the commission (50%), thus ensuring an objective assessment of the work.

## *(2) Expert judgement*

The mentioned principles for preparation of a final thesis in the field of microbiology is well reflected in the submitted thesis topics (annex 5) and in the papers themselves. The topics are very diverse, relevant, rated good or very good in grades, submitted papers are well constructed, which shows the active cooperation of students and supervisors, and compliance with the requirements of both study programs. Research is carried out not only in the laboratories of the Life Sciences Centre, but also in other public, private and social partner laboratories, allowing to choose the topic and the laboratory best able to reveal the knowledge gained during the course.

### ***Strengths and weaknesses of this evaluation area:***

#### ***(1) Strengths:***

1. The programme is very well built in its organisation and has very strong scientific bases.
2. It is unique and well identified in the Baltic area.
3. It addresses important needs in the society and work market.
4. The HEI allows significant flexibility which makes it possible to constantly evolve the contents of the modules.
5. There is a very visible involvement and positive attitude of the senior administration of the programme, the teaching staff and the social partners.
6. Excellent facilities for practical work, teaching, research, library, etc in the brand-new building and campus.
7. Students are very satisfied and there has been no dropout recently in this programme.

#### ***(2) Weaknesses:***

1. The bachelor has very little microbiology (some bachelor programmes that do not bear microbiology in their names may even have more microbiology contents)



2. The percentage of electives might not be sufficient in Master to enable the students to be actors of their own curriculum
3. There is a possibility of competition with other programmes, maybe not at the HEI level where it is managed well, but for employment after graduation, because students from the different biology programmes do not differentiate that much in the mind of some employers

### 3.2. LINKS BETWEEN SCIENCE (ART) AND STUDIES

*Links between science (art) and study activities shall be assessed in accordance with the following indicators:*

*3.2.1. Evaluation of the sufficiency of the science (applied science, art) activities implemented by the HEI for the field of research (art) related to the field of study*

*(1) Factual situation*

In the annual evaluation of the research and development and artistic activity in the field of Biology, the Vilnius University obtained the highest  $\Sigma$ AIV score of all universities and research institutions in Lithuania for the years 2018 and 2019. SER also provides the  $\Sigma$ AIV score for the year 2020 (p. 27, Table 3), but with no comparison to other institutions. Results of the comparative expert evaluation of R&D in the field of Biology for 2018, put the Vilnius University (score 4.64) side by side with Lithuanian University of Health Sciences (score 4.68) in the average quality rating, but on the top (score 4.77) in the overall rating.

The number of peer reviewed publications is in constant rise, despite the COVID pandemic, and there is a constant influx of research funding from different national and international sources. Most of the academic staff of the Microbiology Bachelor and Master programmes are based at The Life Science Centre of Vilnius University and participate in scientific activities that are in line with four main national programmes associated with the microbiology field (SER, p32). National and international collaborations are established via research projects (from 2018-2020 - 13 internationally funded projects (2020 HORIZON, COST etc.; 47 national projects; SER Table 5), organisation of conferences, preparation of theses and publications of scientific papers. Judging from the meetings with senior management, faculty administration and teaching staff, faculty members are satisfied with the facilities, equipment, and funding of study programmes. In a meeting with panel members, alumni, social partners and employers expressed sometimes opposite but generally positive impressions on research skills and knowledge that students gain through their education during both SP programmes. They find that microbiology Bachelor graduates possess wide knowledge and specific laboratory skills, while Master graduates are well educated in different areas of microbiology,

which enables them to easily adapt to various academic research challenges. Employers suggested introducing specific content into the curriculum that would allow graduates to adapt better to challenges found in transferring the knowledge gained through research in teaching towards insertion in the private sector and industry (entrepreneurship, intellectual property, soft skills etc.).

### *(2) Expert judgement*

The panel recognises the research output and quality implemented in the Microbiology study programmes of Vilnius University. The SER was very elusive on awards for research and/or teaching (SER p12; p70) so it would be valuable to define better the HEI policies on activating and rewarding research excellence. International research collaboration and visibility are well established, but it would be of a great benefit to further strengthen these areas – to expand the international research network and to include more international research collaborators as lecturers in the study programmes, either through new elective courses or as guest lectures in existing courses. The curriculum should be complemented with several specialised courses that would enable graduates to better adapt to challenges in the private sector.

### *3.2.2. Evaluation of the link between the content of studies and the latest developments in science, art and technology*

#### *(1) Factual situation*

All the teaching staff are involved in different research projects, scientific conferences and research publications that are related to the study programmes and cover a broad range of topics, from general biology to specific applications of microbiology and biotechnology. As indicated in the SER (research projects and resulting publications in line with the courses of the microbiology SPs (p33-38), publications of the lecturers relevant for the course they teach (annex 4) and confirmed in the panel meetings with representatives of the teaching staff, lecturers include results of their research in their teaching, promote critical thinking and newest achievements in the research fields related to their respective courses and seek means to improve the modern equipment for research and laboratory work. Modification of the study programmes at the level of HEI is flexible and allows quick changes and adaptation to current needs and challenges.

#### *(2) Expert judgement*

There is a clear connection between the research at the HEI and the Microbiology study programmes, especially in the second cycle that covers various aspects and applications of microbiology. Further collaboration with the social and international partners is encouraged, as this would bring additional expertise and help to adapt the programmes to the latest developments in the study field.

### *3.2.3. Evaluation of conditions for students to get involved in scientific (applied science, art) activities consistent with their study cycle*

#### *(1) Factual situation*

Both Bachelor and Master study programmes in Microbiology strongly promote practical work in laboratory and in their curricula contain obligatory laboratory practice within different courses, as well as a scientific research work (MBB SP: obligatory “Course work” in semester VI and “Bachelor Final Thesis” in semester VII; MBM SP: obligatory “Research project” in semesters II and III and “Master Final Thesis” in semester IV). In addition to this obligatory part, students are invited and encouraged in many ways to join scientific research in LSC laboratories and in the partner laboratories in Lithuania and abroad, and some of them publish their results in respectable scientific journals. Students can participate in the popularisation of science, present their work in scientific conferences, participate in organisation of scientific events and seek funding support for the summer research work (in addition to obligatory research within the SPs, 40-72% of students participated in additional activities, depending on the SP, academic year, and COVID pandemic, SER, p39, Table 6). In 2018-2020 most of the 30 realised projects funded by the EU Structural Funds were led by MB SP teaching staff and involved students of the Bachelor and Master study programmes in Microbiology (SER, p40, Table 7).

The panel has noticed that student scientific mobility, which would be important for their development and future career, is not very high despite many opportunities they have. The meetings with teaching staff and students have revealed that students are well informed on the mobility opportunities, but it is easier for them to find a quality research laboratory that would accept students in Lithuania than abroad.

#### *(2) Expert judgement*

Both Microbiology study programmes significantly cover academic and research skills in their official curricula. Students have plenty of opportunities to join various additional

scientific activities. It would be worthwhile to find a way to motivate more students to join the mobility programmes, as this would also increase the internationalisation and the interdisciplinarity of the SPs.

### ***Strengths and weaknesses of this evaluation area:***

#### ***(1) Strengths:***

1. Well established research collaboration with national and international partners
2. Academic staff is actively involved in scientific research that is compatible and embedded into curriculum
3. Students have many opportunities to participate in research and other scientific activities, including mobility programmes
4. HEI allows flexible and quick modifications of a study programme in response to the latest scientific developments

#### ***(2) Weaknesses:***

1. Small number of international lecturers
2. Need of clearly defined HEI policies on promoting and rewarding research excellence

## **3.3. STUDENT ADMISSION AND SUPPORT**

### ***Student admission and support shall be evaluated according to the following indicators:***

#### ***3.3.1. Evaluation of the suitability and publicity of student selection and admission criteria and process***

##### ***(1) Factual situation***

Student admission requirements and process are comprehensive and definite. The General admission is organised and coordinated by Association of Lithuanian Higher Education Institutions for Centralised Admissions (LAMA BPO), an institution authorised by the Ministry of Education, Science and Sports of the Republic of Lithuania, and the VU Admission Procedure to First-Cycle Study Programmes. The main admission criteria is a competition score calculated assessing the grades of state maturity examinations of Biology, Lithuanian Language and Literature, including the grades of state maturity examinations or annual grade averages of Mathematics or Chemistry, or Information Technology, or Physics and of one freely chosen subject. Additional points for social, scientific achievements may be added to the admission score for those entering state-funded places (SF), non-state funded places with a scholarship (NSF/Scholarship) and non-state funded (NSF) places, but not more than 2.5 additional points.

Second-cycle studies admission process is carried out in accordance with the Rules for admission to the second-cycle study programmes of Vilnius University approved by VU Senate.

*(2) Expert judgement*

VU Admission Procedure to First-Cycle and Second-cycle Study Programmes was found to be functional, fair to the applicant and comprehensively described.

*3.3.2. Evaluation of the procedure of recognition of foreign qualifications, partial studies and prior non-formal and informal learning and its application*

*(1) Factual situation*

The evaluation and recognition of the qualifications acquired abroad at the University is carried out according to the Lisbon Recognition Convention, the “Description of the procedure for the recognition of education and qualifications related to higher education and acquired under educational programmes of foreign countries and international organisations”, the “Methodology for evacuating education and qualifications related to higher education and acquired under educational programmes of foreign countries and international organisations” and other documents.

Foreign qualifications are individually evaluated and recognised as equivalent to the secondary education provided in the Republic of Lithuania or higher education qualification of a certain level, if no substantial differences can be identified between the general requirements of the country in which the foreign qualification was acquired and those of the Republic of Lithuania. All the information about students' admission order and requirements is available on the internet webpage of VU.

*(2) Expert judgement*

The expert panel finds the evaluation of the procedure of recognition of foreign qualifications, partial studies and prior non-formal and informal learning and its application to be relevant, understandable and easily available for everyone on the internet webpage of VU.

*3.3.3. Evaluation of conditions for ensuring academic mobility of students*

*(1) Factual situation*

Good conditions for academic mobility of students are ensured. Studies abroad and international cooperation processes at VU are administered by the International Relations Department. Erasmus placements for students is organised and supervised by the Student

Services and Career Centre. The students have a lot of opportunities to participate in the international mobility programmes and projects (Erasmus+) and leave to study: for the period of 3-12 months at the European and other world higher education institutions. The list of higher education institutions for international part-time studies or internships are provided to the students. According to university statistics data between 2017 and 2019, the number of students who chose partial studies at foreign universities increased. Although 2020 - 2021 only one student in the bachelor's degree programme in microbiology had his traineeships at a foreign university it can be assumed that the results of student mobility were affected by the COVID-19 pandemic.

## *(2) Expert judgement*

During the meeting, the students confirmed that they are well-informed and greatly encouraged by the teaching staff to participate in the international mobility programmes and projects (e.g. Erasmus +). The expert panel finds evaluation of conditions for ensuring academic mobility of students to be appropriate although additional actions (e.g. motivational system) for encouraging students should be taken to increase students' interest.

### *3.3.4. Assessment of the suitability, adequacy and effectiveness of the academic, financial, social, psychological and personal support provided to the students of the field*

#### *(1) Factual situation*

The microbiology students are provided sufficiently with academic, financial, social, psychological and personal support. The Student Services and Career Centre provides centralised support. All students, not only Lithuanian, but also international full-time or Erasmus+ students or students studying under bilateral agreements are counselled on all matters related to studies (admission issues, financial support, academic leave, termination of studies, individual study plans, work experience, etc.)

University provides to students a mentorship programme which helps to improve their academic and personal achievements, increase motivation to study and gain valuable experience. Career guidance is provided for students. Individual career counselling is important and helpful for choosing a career path. Moreover, students can receive financial support: scholarships for best learning outcomes, social scholarships, one-off social grants and one-off earmarked scholarships for good learning outcomes, research activity and its presentation, active participation in the university's cultural, educational or social activities. Accommodation is also provided for students.

## *(2) Expert judgement*

The expert panel finds assessment of the suitability, adequacy and effectiveness of the academic, financial, social, psychological and personal support provided to the students of the field to be suitable.

### *3.3.5 Evaluation of the sufficiency of study information and student counselling*

#### *(1) Factual situation*

Information about the study process is provided by the Student Services and Career Centre while information specific to academic units is provided at the LSC Study Unit, and individually, at meetings with academic consultants and lecturers. All study process information is regularly provided on VU and VU LSC websites, student conference mail, in the VU Virtual Learning Environment (VU VMA Moodle system) or MS Teams environment.

Students can have consultations with each lecturer at their appointed office hours. Consultations are also performed after lectures and via e-mail.

#### *(2) Expert judgement*

The expert panel finds evaluation of the sufficiency of study information and student counselling to be effective and appropriate. Students have all the opportunities to solve issues right away with academics' help.

### *Strengths and weaknesses of this evaluation area:*

#### *(1) Strengths:*

1. Well-organised and effective admission system of national students.
2. Strong students' academic, financial, social, psychological and personal support system.

...

#### *(2) Weaknesses:*

1. Low number of students using mobility programs (Erasmus+)

2.

...

## **3.4. TEACHING AND LEARNING, STUDENT PERFORMANCE AND GRADUATE EMPLOYMENT**

*Studying, student performance and graduate employment shall be evaluated according to the following indicators:*

### *3.4.1. Evaluation of the teaching and learning process that enables to take into account the needs of the students and enable them to achieve the intended learning outcomes*

#### *(1) Factual situation*

Microbiology studies in VU are only full time in which contact hours (MBB SP 39-40%; MBM SP 28-31%) and non-contact hours (MBB SP 60-61%; MBM SP 69-72%) are used as main teaching and learning methods in order for students to acquire subject-specific knowledge and develop general and personal competences stated in SER Annex 3 “Coherence Between The Outcomes Of Study Programmes, Outcomes Of The Courses, Study Methods And Assessment Methods”. The evaluation of the study subject consists of a cumulative score and a subject exam, which is mandatory. To collect the cumulative score, teachers assign various tasks (presentation, report, etc.) that students prepare individually or in groups once or several times per subject. The student's ability to reveal the relevance and correctness of the topic is assessed, thereby demonstrating the ability to learn independently.

#### *(2) Expert judgement*

For general and subject-specific knowledge development students self-study time is one of the most important as learning process, during which examination of provided and found material is examined every week, presentations and written papers are prepared usually once per subject than during lectures, seminars and laboratory work discussed, graded, allowing for students to state their findings and opinions on related topics, allowing them to express their concerns and achieved results.

### *3.4.2. Evaluation of conditions ensuring access to study for socially vulnerable groups and students with special needs*

#### *(1) Factual situation*

Studies are available for disadvantaged and/or disabled individuals (movement, vision or hearing, etc. disabilities). Coordinator and for disabled individuals are appointed to contact on the issues of admission, studies, practice. Resolution of 18 February 2020 of the Senate of Vilnius University “The 2020-2025 strategy for diversity and equal opportunities at Vilnius University” has a separate strategic task to strive for dignified, need-friendly, high-quality conditions for people with disabilities to study and work at the University.

#### *(2) Expert judgement*



When entering VU Life Sciences Center (hereafter referred to as LSC) you can immediately see news boards with posters with information where to and how to find social support groups, financial aid for disadvantaged persons. LSC building, visited classrooms (101, 106), laboratories (R324, R378) are easily accessible, and work space can be adjusted. For maximum integration and convenience, the university applies modified assessment forms to adapt to the abilities of students (enlarged font, time of the examination).

There is no publicly available progress or further plan for the implementation of the aforementioned resolution, after 2023. This may also be due to the timing of this evaluation.

### *3.4.3. Evaluation of the systematic nature of the monitoring of student study progress and feedback to students to promote self-assessment and subsequent planning of study progress*

#### *(1) Factual situation*

The progress of students' studies is assessed using the cumulative score, laboratory work, mid-term assessments, independent work and an exam. Feedback after independent or group work is given immediately during question-answer methods and discussions. After the evaluation of the tests, it is usually given to the whole group by the teacher.

#### *(2) Expert judgement*

Using the cumulative score and the final exam during the semester, the student can adequately evaluate his study progress, monitor his effort and make corrections in time, if necessary, as well as taking into account the group and individual feedback provided after given tasks.

Technical laboratory skills are assessed by lab work, during which safe and correct behaviour with work and safety equipment is assessed. To assess technical knowledge, find "X" is most often used. With these assessment methods, not only the teacher, but also the student becomes responsible for the progress made.

### *3.4.4. Evaluation of employability of graduates and graduate career tracking in the study field*

#### *(1) Factual situation*

After completing bachelor's studies, the student can immediately enter the labour market or choose master's studies from 8 programs in Lithuania and abroad; later several doctoral fields. Almost 90 percent graduates get a job in the first year, and about 80 percent choose to continue their studies and work.

After completing their studies, they receive a questionnaire through personal contacts three times, at different time periods, where they indicate how they are doing after completing their studies, where and in what position they work, whether they are satisfied with the current position.

By evaluating the received answers from surveys and official career and state institutions, program changes are made: increasing or decreasing the number of accepted students, adding additional learning subjects (e.g. virology), etc.

### *(2) Expert judgement*

During the meeting with graduates and employers, it was found out that neither the student nor the employer makes a difference when looking for a job and hiring an employee whether he has a bachelor's or master's degree. It is necessary to clarify why a person who has completed a bachelor's degree should also choose master's studies.

Most of the graduates are absorbed by one of the major biotech companies in Lithuania. They indicated that they are not sure how many specialists will still be needed, as they are waiting for future new specialists from another specialty - molecular biotechnology (also being prepared for the LSC).

### *3.4.5. Evaluation of the implementation of policies to ensure academic integrity, tolerance and non-discrimination*

#### *(1) Factual situation*

In order to achieve academic honesty, tolerance and non-discrimination, three documents (statute, code of ethics, strategy) have been introduced, which promote and regulate this.

General ethical norms are included, as well as possible unfair behaviour (cheating, plagiarism, forgery) both among university staff and students. A trust program for reporting violations (no name mentioned) has been implemented, research papers are checked by ESAS, independent observers may be used for examinations.

#### *(2) Expert judgement*

Academic integrity, tolerance and non-discrimination should be achieved using the mentioned measures. For assessments, independent observers, semi-open and open book method, formulation of questions including not only theoretical, but also logical, practical knowledge-

revealing questions, Moodle is suitable for teachers to objectively assess and avoid subjectivity, and for students to reveal and demonstrate their knowledge. Such a conclusion can be made after a meeting with both students and teachers, who gave positive feedback about the existing system and its effectiveness; Also taking into account the small number of complaints (5 in 2018-2020), 80 percent of them to be resolved in favour of the complainant.

#### *3.4.6. Evaluation of the effectiveness of the application of procedures for the submission and examination of appeals and complaints regarding the study process within the field studies*

##### *(1) Factual situation*

In order to create a fair and tolerant academic community, a functioning system has been created: committees are formed from both university and student representatives to resolve disputes and other ethical issues. The observed or experienced violation (both the teacher and the student) can be reported in several ways: signed and sent through e-delivery system, signed and scanned or signed by the qualified e-signature and sent by email.

##### *(2) Expert judgement*

Members of most committees are appointed for a 2-year term and the number of terms of office of commissioners is unlimited.

Anonymous and other appeals and complaints that do not meet the requirements of the Regulations are not considered. In some cases the commission, after evaluating the information provided in complaints, may initiate an investigation into a violation of academic ethics or transfer the appeal or complaint to the Department's Academic ethics commission.

#### ***Strengths and weaknesses of this evaluation area:***

##### ***(1) Strengths:***

1. Students and teachers have the opportunity to use a flexible and objective system for the learning process, monitoring achievements using electronic tools such as Moodle and cumulative score and a platform is provided to solve the problems that have arisen.
2. Students chose to continue their studies in master's and doctoral studies by combining them with work, which shows the flexibility of the study process and program.
3. Feedback is provided in both directions (teacher-student), several times during the semester, thus allowing changes in the process not only after the end of the subject.

##### ***(2) Weaknesses:***

1. In many implemented policies, anonymous submissions are not processed (only in exceptional cases).
2. Most committee members can serve an unlimited number of continuous terms.

### 3.5. TEACHING STAFF

***Study field teaching staff shall be evaluated in accordance with the following indicators:***

*3.5.1. Evaluation of the adequacy of the number, qualification and competence (scientific, didactic, professional) of teaching staff within a field study programme(s) at the HEI in order to achieve the learning outcomes*

*(1) Factual situation*

Since the last evaluation, there were substantial changes in the second-cycle study programme (2018/2019) and a first-cycle programme was introduced in 2013. These changes were also followed by the necessary adjustments in the teaching staff. Currently the teaching staff for both microbiology study programmes comprise 52 lecturers (43 academics in VU and 9 employees in collaborating institutions and industry) and 35 of them teach courses in the study field. The panel was pleased to know that the total ratio of lecturers to students in the study field is very favourable (currently 1:3.5, SER p65, Table 17) and this was confirmed in the meetings with lecturers and students. Lecturers reported that their teaching workload, while heavy, is within the limits of the quota, leaving them enough time for scientific research. Students confirmed the availability, disposition and expertise of their lecturers both for the teaching and laboratory research.

Employment of the teaching staff follows the Procedure for the Re/Appointment of Academic and Art/Research Staff at Vilnius University. As seen from the SER tables 19 and 20 (p66 and p67), teaching staff fulfils all general requirements for both study cycles, as well as the requirements of the VU study programme regulation. Annex 4 of the SER and chapter 2 of SER illustrate proper qualifications of the teaching staff for the study program. As mentioned before, all lecturers are involved in high-quality scientific research within the study field and readily incorporate their scientific expertise in teaching. The number of the research projects in which the teaching staff participated in the period of 2018-2020 is substantial (SER, Table 5), and resulted in total funding of 830 000 EUR (SER, p27) and a number of high-quality publications. Teaching staff is evaluated every five years by measuring various instruments of scientific production, involvement in the teaching and mentoring within the study programme, expert activities, and very importantly, student feedback. The panel was satisfied to know,

directly from the meetings with management staff, lecturers and students, that SPC constantly evaluates and discusses specific needs of the study programmes, the quality of teaching, lecturers' workload, as well as opinion of students. If there is a need for a specific new content in the SP, SPC discusses the qualifications of lecturers and appoints the lecturer with best qualifications. Lecturers' workload can also be changed if needed, and as stated earlier in the report, changes of the lecturers have been made based on student feedback. It is worthwhile that the general attitude of all parties is very positive and in favour of improving all aspects of teaching.

The distribution of academic positions is balanced and appropriate (14% professors, 25% associate professors, 25% assistants, 20% junior assistants, 16% lecturers; SER p67, Table 22) and the age pyramid is in favour of young teaching staff. As an example, it is worthwhile that assistants (with PhD) and junior assistants (PhD students) represent 45% of the teaching staff, which is a solid basis for the continuation of teaching quality in the future.

## *(2) Expert judgement*

Teaching staff are qualified and competent for the implementation of both study programmes, and their number, positions and workload are adequately distributed. There is an established system for employment and evaluation, with excellent quality control and instruments that allow for quick and effective changes when needed. External lecturers from the partnering institutions contribute to all aspects of the teaching, as well as in creating study programmes. To further contribute to the quality of the study programs, by means of modern expertise, interdisciplinarity and internationalisation, the panel would suggest increasing the number of external lecturers, especially international ones.

### *3.5.2. Evaluation of conditions for ensuring teaching staffs' academic mobility*

#### *(1) Factual situation*

Current organisation of the teaching process at the HEI allows sufficient flexibility for the teaching staff mobility and enables rescheduling of contact hours, sabbatical leave and providing time for travel in general. Teaching staff participate in scientific conferences, internships, visits to collaborating partners, teaching and other specific scientific and teaching activities abroad. Complete mobility of academic staff in the period of 2017-2020 is indicated in Table 23 of SER, p68. It includes 21 learning visits in Lithuania, 48 learning visits abroad and 7 teaching visits abroad. Funding for mobility is ensured from the ERASMUS programme (in the

last 3 years 3 lecturers delivered 6 lectures in the universities abroad) from the Ministry of Education, Science and Sport, the Education Exchange Support Fund or from the internal LSC funds (visits from foreign lecturers; 9 lecturers delivered lectures in the microbiology SPs from 2018-2020, SER Table 24, p68). As stated before, teaching staff are strongly involved in scientific research and participate in many projects funded by the national and international funding agencies. Lecturers often use funds from scientific projects for research mobility or for participation in scientific conferences.

## *(2) Expert judgement*

Considering the organisation flexibility of the HEI, panel members are of the opinion that there is still space for increasing the proportion of academic mobility that would be in line with the HEI plans to expand interdisciplinarity and internalisation. We would suggest expanding the existing research and teaching networks, use ERASMUS funds more extensively and apply for more mobility funding.

### *3.5.3. Evaluation of the conditions to improve the competences of the teaching staff*

#### *(1) Factual situation*

VU has established the Center for Educational Competence and since the academic year 2017/2018 various teaching competence training programmes for academic staff have been organised both in person and online. Teaching staff is strongly encouraged to improve their teaching and pedagogical skills via training programmes, as witnessed in meetings with management staff and lecturers (during the last three years 11 lecturers from microbiology SP participated in training programmes). COVID pandemic opened new needs for remote learning and VU responded very well to the imposed changes. Academic staff was provided with computers and necessary equipment and was offered training on how to use the Moodle, Microsoft Teams and Zoom platforms. Newly acquired skills have been successfully implemented in teaching, as confirmed by lecturers and students in panel meetings and both parties expressed a very positive attitude towards improvement of the lecturers' skills and new ways of teaching. Although competence training programmes are not obligatory, the attendance and interest for them is expected to increase, because in May 2021 new rules were established in the recruitment of the lecturers in VU that require basic pedagogical competencies.

## *(2) Expert judgement*

The panel considers that VU with its Center for Educational Competence offers an excellent platform to update and upgrade staff teaching competencies and new lecturer recruitment requirements are reinforcing the process in the proper direction. Taken together this trend is of course positive for the present programme. We encourage the teaching staff to continuously implement all the skills acquired during COVID pandemic and continue to expand them into innovative ways of teaching, including problem-based learning, the Self-Organised Learning Environment (SOLE) etc.

### ***Strengths and weaknesses of this evaluation area:***

#### ***(1) Strengths:***

1. Qualified and competent teaching staff for the implementation of microbiology SPs
2. Well established system for recruitment and evaluation of teaching staff
3. Well balanced distribution of academic positions and teaching workload
4. Quality control and flexibility of the HEI to respond to the needs of the SP and student feedback
5. Flexibility to allocate time for teaching and research
6. Established Center for Educational Competence with many opportunities to improve teaching competencies of the academic staff

#### ***(2) Weaknesses:***

1. None.

## **3.6. LEARNING FACILITIES AND RESOURCES**

***Study field learning facilities and resources should be evaluated according to the following criteria:***

*3.6.1. Evaluation of the suitability and adequacy of the physical, informational and financial resources of the field studies to ensure an effective learning process*

### ***(1) Factual situation***

Since the last self evaluation report, the 2016 study program has moved to new premises in the Life Sciences Center. Accordingly, the former SER recommendations regarding the renovation of auditoriums, laboratories and their equipment were implemented. Accordingly, former SER recommendations regarding auditoriums, laboratories and their equipment have been implemented. Now there are 8 lecture rooms, 6 educational laboratories and 7 educational laboratories for research, which are used for the microbiology study program, all adapted for people with disabilities.

## *(2) Expert judgement*

The library, LSC and dormitories are next to each other, so convenience is assured. During the site visit, the library, textbook storage, R101 R106 classrooms and R324, R378 laboratories were visited: the library has links to where to find the literature you are looking for, most of the computers access electronic databases (books, magazines), it is open 24 hours a day, and there is self-service for picking up and returning literature; The auditoriums are equipped with the latest technical equipment (computers, multimedia, etc.), which allows lectures to be conducted in an interactive and engaging manner; The laboratories have the equipment mentioned in SER (table 29), enough space for students to work individually and in groups (3-6 square metres per person), reagents and other tools. The current situation in the new premises of the Life Sciences Centre shows the proper use of physical, informational and financial resources and ensures an effective teaching and learning process.

### *3.6.2. Evaluation of the planning and upgrading of resources needed to carry out the field studies*

#### *(1) Factual situation*

Since the premises, furnishing and equipment are still quite new, there is no special plan for renovation. If additional measures, electronic resources, equipment, reagents are required, they are purchased with the help of public tenders or by submitting special requests to the administration and are purchased depending on financial possibilities.

#### *(2) Expert judgement*

Planning and updating of resources necessary for the execution of studies takes place according to the general established procedure at the university and faculty level, it is obvious that to date the support of state and social partners is used for the purposeful teaching and learning process in the microbiology study program.

#### ***Strengths and weaknesses of this evaluation area:***

##### ***(1) Strengths:***

1. Students and professors have equal opportunities to use the existing modern academic resources of the university (books, databases, electronic subscriptions, individual workplaces, laboratories, etc.), and can express the need for what is missing in planning and conducting research work.

##### ***(2) Weaknesses:***

1. None.



### 3.7. STUDY QUALITY MANAGEMENT AND PUBLIC INFORMATION

***Study quality management and publicity shall be evaluated according to the following indicators:***

#### *3.7.1. Evaluation of the effectiveness of the internal quality assurance system of the studies*

##### *(1) Factual situation*

The SER indicates that the HEI has setup a strong policy to develop quality assurance processes in accordance with the “Standards and Guidelines for Quality Assurance in the European Higher Education Area”, under the “The Development and Implementation of an Internal Study Quality Assurance System at Vilnius University” project. The programme quality assurance falls under the responsibility of the Study Programme Committees, who consist of “lecturers who implement the programme, social partner(s), and student representative(s)”. Those committees rely on “the Regulations of the Study Programme Committee of Vilnius University” (SER p81). Quality process also strongly involves the unit deputy director. She also chairs the LSC College of Studies, which consists of the chairmen of the SPCs and student representatives. The programme updates are supervised by the the Study Quality and Development Department.

The different processes and/or indicators that have been put in place for assurance quality consist in a large list of items and actions as written below in the SER (p81): “SP approval, monitoring, and assessment; monitoring and analysis of the study process; implementation and improvement of student performance evaluation, remote learning, computer testing and plagiarism screening systems; a system of competence training and development of the academic staff, implementation of student-centred learning; implementation of an induction programme for newly admitted staff and a student drop-out prevention programme; ensuring suitable study environment, resources and academic, social, cultural and other relevant support to students; career services; feedback from the participants of the study process, the dissemination of information about best practices in quality assurance; and student involvement”. While such a list is pretty exhaustive, a more structured and/or hierarchized plan for QA seems to be lacking at this step: what are the priorities for the programme? What are the most relevant KPIs? etc...

Pertaining to the programme itself, the detailed information is more difficult to find. During the panel meeting, both staff and students mentioned that most teachers and staff management were very reactive in acting on situations where problems could be reported, either through the University online questionnaires or directly by students. Concerning the

internship, the SER mentions (p60) that “The SPC conducts assessment of progress made by students during work experience/professional practice by collecting feedback from the institutions where the students performed their practice” and also “monitors whether there are any deviations from regular student results, assesses feedback from students” and in result takes active states to correct the problems to improve the quality of studies. During the panel interviews the students mentioned that indeed when a teacher or course was repeatedly not giving satisfaction, the students’ complaints were indeed efficient to promote change.

### *(2) Expert judgement*

The SER mentions that VU intends to “[...] foster a culture of quality at VU, grounded in the values of the VU mission, monitoring and analysis of study data, and internal dialogue regarding the constant improvement of quality”. This is commendable and there are different sections of the SER that depict the strategy used here. In this respect the programme examined here appears to of course rely on the HEI procedures and regulation but also to constantly monitor the satisfaction and progress of its own students often by direct interaction; especially in Master where student numbers are not very large.

### *3.7.2. Evaluation of the effectiveness of the involvement of stakeholders (students and other stakeholders) in internal quality assurance*

#### *(1) Factual situation*

Social partners participate in the Study Programme Committee and in different surveys. The social partners listed in the SER (p83) are Thermo Fisher Scientific Baltics, JSC Bioenergy LT, Grunto Valymo Technologijos, or the Lithuanian Microbiological Society, The SER also mentions a partnership with the EMBL and with NRC, the Centre for Innovative Medicine, and the FTMC. During the interviews, the panel met with representatives of different organisations/companies that indeed include some of those cited above. Of note, a significant portion of the programme alumni are employees of Thermo Fisher Scientific Baltics, showing a strong relation between this company and the programme. These social partners participate in many different aspects of the programme, from teaching to hosting students’ internships, to programmes construction and participation in different steering committees. These mechanisms and questionnaires ensure that the stakeholders are regularly asked for their opinion and possible concerns about the programme. This was also very apparent during the

interviews where it was clear that the different partners knew well the programme, its students and were feeling free to speak about it, in very positive terms.

## *(2) Expert judgement*

Taken together the relations appear very positive with the private and public stakeholders and could be even shown as a commendable example to show how other institutions could develop such partnerships. As there is a very close proximity that is fed by decades of common work and as it operates obviously well, the panel considers that it will not be more productive to ask to further codify it using the classical processes of quality assurance would bring any added value; and may instead make the whole process complicated and heavy instead.

### *3.7.3. Evaluation of the collection, use and publication of information on studies, their evaluation and improvement processes and outcomes*

#### *(1) Factual situation*

The University website has a page from the faculty of communication that advertises surveys that students can take about their studies

<https://www.kf.vu.lt/en/news/in-english/6197-give-feedback-on-your-studies-and-contribute-to-improving-their-quality>. The webpage indicates that students can win a prize if they reply, showing that the HEI is well aware of the difficulties to motivate students and tries to take them into account by adding a playful dimension to the filling out of questionnaires.

The bachelor and master microbiology programmes of study are also presented on the microbiology and biotechnology department website. While only the basics are visible to the best of the panel's ability to navigate to the pages, a link point toward a nice and informative youtube promotional video on the Life Sciences Center

(<https://www.youtube.com/watch?v=PEjeqmRTK5c>). Detailed information on different practical aspects of the studies is available on the Life Sciences Center, for example students' admission conditions (SER p42-44), mobility (SER p49), support and scholarship (SER p 52-53), the methodology for final theses (SER p24) etc...

Concerning the assessment, the SER p61 indicates that "The information on the ongoing and/or interim assessment of learning achievements must be provided to students no later than five business days from the date of the final assessment of the learning achievements of the course

(module).” While it is important to have regulations, such a short notice may be too close to the exam so that the students do not have time to plan their learning accordingly.

## *(2) Expert judgement*

Taken together, the University services, the Life Sciences Centre and the department of microbiology and biotechnology are clearly and efficiently informing the students on the different aspects of their studies as well as the methods for their assessment. For the latter, posting assessment information earlier might be beneficial for the students.

### *3.7.4. Evaluation of the opinion of the field students (collected in the ways and by the means chosen by the SKVC or the HEI) about the quality of the studies at the HEI*

#### *(1) Factual situation*

Students’ feedback is collected through a global university questionnaire about the modules (Study Quality and Development Department of Vilnius) that did not meet a lot of positive opinion itself during the students’ interviews. Students complained that those questionnaires are too long (>20 questions as seen on the Feedback Document demanded by the panel), cumbersome to fill and that due to the number of modules, the multiplication of questionnaires to fill is a tedious chore, explaining the low percentage of replies the staff gets on the programme. To compensate several teachers have designed their own questionnaires and in general all are close enough to them to gather oral feedback directly. As mentioned before the HEI also tries to motivate the students for these questionnaires.

Besides this problem, that can be found recurring in many Universities, students are globally satisfied with the quality of programme and the course, as explained both by alumni and students during the panel interview and also from the numbers given in the SER, where ~80% – first-cycle and ~66% – second-cycle students were satisfied with the programme contents and on the quality of courses (~75 % – first-cycle and ~58 % –second-cycle). They also agreed at more than 80% that they were encouraged to search by themselves and think critically. In the additional documents demanded by the panel, it also seemed clear that the students were satisfied with their courses and their interaction with their professors.

## *(2) Expert judgement*

Engaging students in feedback collection and exploitation is difficult in many institutions worldwide and the situation here makes no exception (see previous sections). Hence while it is clearly not optimal at the HEI level it would not be constructive for the panel to be too negative on this aspect especially as the students appear globally satisfied and as the programme works well. There is however room for improvement that may require more upstream measures such as establishing a stronger sense of ownership to the HEI or the programme, or implementing a comprehensive quality assurance process designed for continuous improvement.

### ***Strengths and weaknesses of this evaluation area:***

#### ***(1) Strengths:***

1. Globally the quality insurance systems work as the programme senior management has an adequate vision of the problems and can implement them
2. The students are satisfied with the programme and the information they received on it.

#### ***(2) Weaknesses:***

1. As in many systems the motivation of students to provide feedback is not optimal despite the efforts done to improve this aspect

## IV. EXAMPLES OF EXCELLENCE

**Core definition:** Excellence means exhibiting exceptional characteristics that are, implicitly, not achievable by all.

1. The excellence of the installations provided to the students in the recently-built and very well organised and maintained Life Sciences Centre.
2. The extremely good quality of the partnerships with the actors of the private sector.

## V. RECOMMENDATIONS

Evaluation Area	Recommendations for the Evaluation Area (study cycle)
Intended and achieved learning outcomes and curriculum	<ul style="list-style-type: none"> <li>● Increase the microbiology contents of the bachelor programme or consider creating a general bachelor in life sciences</li> <li>● Introduce a module to give the students the basic knowledge to insert in the private sector</li> <li>● The ratio of electives could be further increased in Master to further empower the students to build their own curriculum</li> <li>● It would be interesting to push the students to more internationalisation using the European alliance and the post-COVID tools</li> </ul>
Links between science (art) and studies	<ul style="list-style-type: none"> <li>● Consider to define better the HEI policies on activating and rewarding research excellence.</li> <li>● Further development of the research agenda in terms of international connections and the visibility of those connections would be of benefit, especially by including more international research collaborators as lecturers.</li> </ul>
Student admission and support	<ul style="list-style-type: none"> <li>● Keep active communication with other universities and students to attract more incoming exchange students and motivate national students to try mobility programs.</li> </ul>
Teaching and learning, student performance and graduate employment	<ul style="list-style-type: none"> <li>● Majority of students plan to pursue a career in Lithuania, it is recommended to clearly name both future specialists and employers how a microbiologist is different from another LSC specialist.</li> <li>● The list of potential employers can be increased by adding subjects to the program that would later allow the bachelor to work in other laboratories (e.g. diagnostics)</li> <li>● Taking into account the psychological factor when filing a complaint, anonymous statements should be considered or</li> </ul>

	clearly defined what information must be provided in them in order to accept an anonymous statement.
Teaching staff	<ul style="list-style-type: none"> <li>● It would be of further benefit to increase the proportion of academic teaching mobility</li> </ul>
Learning facilities and resources	<ul style="list-style-type: none"> <li>● Allocate more funds for the purchase of specialised computer software for -omics and more various microorganisms for practice.</li> </ul>
Study quality management and public information	<ul style="list-style-type: none"> <li>● Continue the efforts to improve the student's implication in the programme assessment</li> </ul>



## VI. SUMMARY

### **Main positive and negative quality aspects of each evaluation area of the study field *Microbiology* at Vilnius University:**

This programme in Microbiology encompasses both Bachelor and Master levels. It aims to answer the importance of microbiology in science, public organisations and industry, resulting in an important need for very skilled microbiologists. The programme is very well positioned in its local ecosystem as it is the only one dedicated to microbiology in the Baltic area.

Besides the fact that this programme fulfils an important need for microbiologists, the panel noted that it is built to take into account the needs and interest of all stakeholders, with a clear vision of the labour market in the field. It is also operated by a very dedicated staff of very good scientific quality in microbiology and is served by great facilities and equipment. This enables the students to learn and do their research projects in a very stimulating intellectual and material environment. Consequently, the programme is very solid in terms of learning outcomes, skills and competences; students workload organisation, teaching and assessment methods. Also very commendable are the partnerships with private companies that unanimously acknowledge the quality of its students. Finally, the present microbiology programme benefits from the HEI organisation that offers a very strong support to the students and also ensures an efficient culture for quality insurance.

While this programme has very positive aspects, it also bears some fragilities that have been detailed in the body of the present report and are summarised below.

The Bachelor works more like a general Life Sciences than a microbiology programme. The panel fully understands that all biology students must be trained with a very solid and large scientific background, in particular as biology is complex and as students must have the possibility to reorient themselves during their curriculum. However, in this context giving this bachelor a Microbiology denomination is not readable if it has too little content in this field. The panel strongly encourages those in charge of the programme and possibly the HEI to either display a general bachelor's in biology with a possible progressive specialisation towards different masters, or to better differentiate the microbiology bachelor by further increasing the corresponding content.

Concerning the master, an important word of caution is that the employers do not fully distinguish these students from those of other programmes that could appear very close, notably Molecular Biotechnologies. The staff should therefore carefully monitor that these two programmes do not enter in competition, not that much at the HEI level (e.g. for spaces, funding,

teachers, practical, internships...) but at the level of the job market itself. The fact that companies work in close collaboration with the staff should help to follow this matter up in good conditions.

Another important recommendation is to continue the efforts to introduce more electives preferably connected to microbiology at Master's level, in order to reinforce the Master specificity and to make the students more actors of their own training.

The panel also found that internationalisation of both students, contents and staff is too limited, not only due to COVID. This should be improved, using for this the existing alliances and Erasmus contracts, to offer further opportunities not only for students and staff mobility but also for course contents and modularity.

The panel also noted a demand both from students and companies for courses to innovation, entrepreneurship and introduction to the private sector.

Taken together, the panel concludes that if these points could be addressed; this programme that is already very satisfactory could be excellent. The panel is very confident that this can be done in a very positive manner, as very solid foundations already exist for the programme.

Expert panel chairperson signature:

Prof. dr. Laurent Counillon

(signature)