



CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

EVALUATION REPORT

STUDY FIELD of GENETICS

at LITHUANIAN UNIVERSITY OF HEALTH SCIENCES

Expert panel:

1. Prof. dr. Halina Gabryś (**panel chairperson**), *academic*;
2. Assoc. prof. dr. Arjan de Brouwer, *academic*;
3. Mr. Julius Gagilas, *representative of social partners*;
4. Ms. Miglė Agnietė Bartels, *students' representative*.

Evaluation coordinator – *Ms. Jūratė Čergelienė*

Report language – English

©	Centre for Quality Assessment in Higher Education
---	---

Study Field Data

Title of the study programme	Medical and Veterinary Genetics
State code	6121DX002
Type of studies	University studies
Cycle of studies	First cycle
Mode of study and duration (in years)	3.5 years studies
Credit volume	210
Qualification degree and (or) professional qualification	Bachelor of Life Sciences Qualification of Biomedical Technologist
Language of instruction	Lithuanian
Minimum education required	Secondary education
Registration date of the study programme	2011.04.08

CONTENTS

I. INTRODUCTION	4
1.1. BACKGROUND OF THE EVALUATION PROCESS	4
1.2. EXPERT PANEL	4
1.3. GENERAL INFORMATION	5
1.4. BACKGROUND OF STUDY FIELD/STUDY FIELD PLACE AND SIGNIFICANCE IN HEI	5
II. GENERAL ASSESSMENT	6
III. STUDY FIELD ANALYSIS	8
3.1. INTENDED AND ACHIEVED LEARNING OUTCOMES AND CURRICULUM	8
3.2. LINKS BETWEEN SCIENCE (ART) AND STUDIES	12
3.3. STUDENT ADMISSION AND SUPPORT	14
3.4. TEACHING AND LEARNING, STUDENT PERFORMANCE AND GRADUATE EMPLOYMENT	18
3.5. TEACHING STAFF	22
3.6. LEARNING FACILITIES AND RESOURCES	25
3.7. STUDY QUALITY MANAGEMENT AND PUBLIC INFORMATION	26
IV. EXAMPLES OF EXCELLENCE	29
V. RECOMMENDATIONS	30
VI. SUMMARY	32

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 are prepared by Higher Education Institution (hereafter – HEI); 2) site visit of the expert panel to the higher education institution; 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 the 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 (hereinafter referred to as the 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 September, 2022*.

Prof. dr. Halina Gabryś (panel chairperson), *professor emeritus, Department of Plant Biotechnology, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Poland;*

Assoc. prof. dr. Arjan de Brouwer, *associate professor, Department of Human Genetics, Radboud University Nijmegen Medical Centre, The Netherlands;*

Mr. Julius Gagilas, *director of JSC „Diagnolita“, Lithuania;*

Ms. Miglė Agnietė Bartels, *Master of Science: Biology (Specialization: molecular- and cell biology), Free University of Berlin, Germany.*

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.	Information on how students are assessed.
2.	Information that shows the percentage/proportion of the laboratory work carried out in the study programme.
3.	Information on admission rules for students who have not taken Lithuanian exam.

1.4. BACKGROUND OF THE STUDY FIELD/STUDY FIELD POSITION/STATUS AND SIGNIFICANCE IN THE HEI

The Lithuanian University of Health Sciences (hereinafter LSMU, the University), the largest HEI for health sciences specialists in the country consists of seven faculties, five of which are medical faculties and two are veterinary faculties. The university offers 123 study programmes, the first, the second and the third cycles, and residency.

The Faculty of Medicine offers four study programmes: Medicine, **Medical and Veterinary Genetics** (hereinafter MVG, the Programme), Medical and Veterinary Biochemistry, and Laboratory Medical Biology. The Programme is performed in a close collaboration between two LSMU units: Medical Academy and Veterinary Academy, and professional competencies of specialists employed in both units are used in the programme. LSMU collaborates with numerous Lithuanian and foreign social partners in national and international research projects in health and veterinary science fields. The projects are carried out under the Horizon 2020, AcceIED, Cost and other programmes. The main international partners for research are University of Copenhagen, Free University of Berlin, Humboldt University of Berlin and many others.

The only external study programme evaluation was carried out in the year 2014, three years after MVG had been launched. The following changes have been made in response to the experts' recommendations:

- Several subjects were added according to the experts' suggestion to broaden the aim and learning outcomes. These are: General and Inorganic Chemistry, Organic Chemistry, Basics of Higher Mathematics and Probability Theory, Epigenetics, and Plant Genetics.
- The learning outcomes of the MVG study programme have been adjusted to meet requirements for bachelor studies in the field of life sciences.
- The curriculum of the Programme has been revised, modified and adjusted according to the experts' recommendations (details given in Annex 1.6).
- MVG module plans and content have been thoroughly reviewed and improved.
- Time to prepare the final thesis has been extended to 1.5 years.
- LSMU supplemented the MVG laboratories with modern equipment and next-generation genome analysis technologies.
- The number of teaching and training visits of the LSMU lecturers to foreign institutions increased.

- New lecturers holding a PhD degree in biology, medicine, or biochemistry have been invited to implement the theoretical and practical part of the MVG study programme.
- The library has purchased new books which are extensively used by the MVG students, as well as new releases of publications and periodicals.
- The Study Programme Committee (hereinafter SPC) intensified disseminating the latest information about the MVG study programme.
- Student feedback procedures have been introduced and surveys of the MVG students are regularly conducted.

II. GENERAL ASSESSMENT

Genetics study field and **first cycle** at Lithuanian University of Health Sciences 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	4
2.	Links between science (art) and studies	4
3.	Student admission and support	4
4.	Teaching and learning, student performance and graduate employment	4
5.	Teaching staff	3
6.	Learning facilities and resources	5
7.	Study quality management and public information	4
	Total:	28

*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 MVG study programme aims to prepare *‘innovative, creative, and critically thinking with broad erudition, qualified geneticists with the fundamental knowledge and skills required to work in the MVG related fields’* as the SER states (p. 7). The Programme delivers diverse professionals who can work independently with the newest genetics technology (amongst others) and have affinity for life-long learning. They gain a bachelor's degree in life sciences, corresponding to the sixth level of the Lithuanian Qualifications Framework and the sixth level of the European Qualifications Framework for Lifelong Learning. After their studies the graduates are employed as laboratory assistants, medical and pathology laboratory assistants/technicians, life sciences technicians and such like. They can also become database designers and administrators, technology and production engineers and they can start their own business or be a part of it as shareholders.

(2) Expert judgement/indicator analysis

During the meeting the alumni stated that they experienced a gap in their knowledge of fundamental science. They expressed the opinion that molecular and cellular biology could be taught earlier, starting from the first year. Then the courses that would deal with massive parallel sequencing technologies could be extended. This could be done by switching obligatory courses that, according to the students, contain too much ‘useless information’ such as the care for animals outside a scientific field, to electives. As an expert panel, we support this course of action.

In general, the social partners are satisfied. They are receiving good and motivated students for internships and a number of them enter the company later on. However, they express a wish to give advice on the Programme rather than only give lectures and material for the courses. They, for instance, suggest that a short course of 1.5 credits on soft skills competence, such as planning, communication, and such like would be worthwhile. The expert panel sympathises with their wishes.

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

As stated in the SER (p. 8): *'The LSMU vision is to be a leading university of health sciences in Europe for the prosperity of society. The LSMU mission is to create, gather, systematise, and disseminate the scientific knowledge, latest achievements in science/research and studies, to teach and develop a creative, honest, proactive, intelligent, healthy, independent, and entrepreneurial personality fostering democracy and economic well-being and building a healthy and educated society.'* Making sure that the health and welfare of humans and animals is an integral part of this objective. The MVG study programme's aims and outcomes adhere to these principles. The SPC prepares an annual plan and this is reviewed by the Medical Faculty Council. It has the following key objectives: 1. internationally competitive graduates; 2. research-based technologies and innovations; 3. to be an international university; 4. to ensure that humans and animals are healthy; 5. to be united, creative, and have a socially responsible university community. These plans are publicly available on the LSMU website.

(2) Expert judgement/indicator analysis

As an expert panel, we feel that this is adequate. We do not see room for improvement at this moment.

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

(1) Factual situation

The full-time MVG study programme comprises 210 credits, which are gained in seven semesters. The practical hours are between 35-45% in the first six semesters and add up to 90% in the last semester. The contact hours that the lecturers spend during courses on the students are more than 20% of the total dedicated time. The MVG study programme is divided amongst general i) university study modules, which cover 45 ECs, ii) compulsory study field group subjects, of which a total of 155 ECs are gained, and iii) elective modules of 10 ECs in total. The courses fit well with topics discussed and are up-to-date. Before the middle of May each year, the students choose these elective modules to study next academic year. The first-year students select the elective topics within the first two study weeks of their study. The guidelines of the Descriptor are followed to the letter making sure that the MVG programme adheres to these guidelines. For most modules, five ECs are given, enabling the dynamics of the programme. Each year, the SPC reviews and updates the study programme. External and internal self-evaluations (also by the students) are used to adjust the ECs that can be gained in each course. The respective suggestions are then submitted to the MF Council. The LSMU Rectorate, the Senate Commission for Science and Studies, the Senate College discuss the suggested changes of the MVG study plans. Finally, the changes are approved by the LSMU Senate.

(2) Expert judgement/indicator analysis

We, as an expert panel, feel that this is adequate. We do not see room for improvement at this moment.

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 learning outcomes of the MVG study programme are according to the Descriptor¹. The intended learning outcomes, *i.e.* '1.1 Able to communicate the results of the individually carried out research and cooperate with researchers from other scientific fields', etc (annex 1.3 of the SER) are taught and tested correctly. The teaching/learning, *i.e.* lectures, practical work and such like, seem to be compatible with the assessment methods, *i.e.* written test, defence of the laboratory work, and such like. A cumulative point system is used to assess the students' achievements.

(2) Expert judgement/indicator analysis

In general this Programme seems well organised. However, the expert panel suggests to use so-called 'rubrics' or other types of grading forms to be sure that the aims set for presentation and laboratory work and such like, are met.

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

The scope and content of the modules in the study programme are well organised. The modules fit together and allow the students to develop the knowledge, competencies, and abilities they need. The sequence of the study modules is arranged from general to specific so that the students grow into the studies habitually. More straightforward courses are given at the start of the programme and become more complex at the end. During the second study year, the students select their internships projects. In the third year of the studies, more of the genetic topics are given. The fourth year of study is for practical training and preparing the final theses. The elective study modules supplement the programme with a more personalised learning environment for the students.

(2) Expert judgement/indicator analysis

It is applaudable that the HEI wants to create a platform for students to study molecular methods and animal genetics. Thereby, the students are optimally prepared for human and veterinary genetics. However, there are only a few students opting for veterinary genetics. Only two theses were shown concerning that topic. This can of course be just because of the interest of the students, but this can also be caused by the fact that **students should first select their internships (year 2)**

¹ https://www.skvc.lt/uploads/lawacts/docs/363_81541d15c692b625816daeff92f1e0c9.pdf

and only then are introduced in veterinary genetics (year 3). The expert panel suggests that this should be changed and turned around.

The content of the modules in general is good. The students are brought up-to-date with the latest developments. However, the course in basic English is not needed anymore. All students already have at least a C1 level. The expert panel suggests to amend this course into a course in academic writing and presenting in English. There are lecturers from abroad that could teach in such a course.

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 students are free to choose subjects from the list of elective subjects offered, freely choose the location of practice, the topic of the final thesis, the location of additional practical training, and thus individualise their studies.

(2) Expert judgement/indicator analysis

The students can fill a part of their programme with electives to make the programme tailor-made according to their own wishes. There is, however, **a limited choice in electives**. The students would like to be more flexible. We would suggest that there should be more options for electives, such as a genetically modified organism (GMO) course.

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

(1) Factual situation

The evaluations of the final theses adhere to the Regulations for the MVG bachelor's thesis preparation, defence and assessment. The list of the final thesis' topics is published in May of each academic year. The department(s) suggesting the subject makes sure that the final thesis topics are within the field of genetics. Moreover, MVG Study Programme Committee organises student meetings with the responsible for final theses lecturers to introduce the students to the proposed topics. In June, at the end of the second study year, the students select their final thesis topic. After the thesis topic is chosen, the Dean of the Medical Faculty issues an ordinance with which an individual plan can be prepared and executed. In the last three years, there was one final thesis organised by the social partner Thermo Fisher Scientific. About 80% of bachelor's theses were performed in the field of medical and/or veterinary genetics. The remaining 20% of students have prepared their bachelor's theses in fundamental genetics.

(2) Expert judgement/indicator analysis

As an expert panel, we feel that this is adequate. We do not see room for improvement at this moment.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The bachelor's degree in life sciences paves the way for graduates to become employed in a multitude of areas and gives them access to a second cycle of study.
2. The annual activity plan and the report on the activities of the previous year are publicly available on the LSMU website.
3. A yearly update of the study programme by the SPC.

(2) Weaknesses:

1. There are only a few students opting for veterinary genetics, which could also be caused by the fact that students should first select their internships (year 2) and only then are introduced in veterinary genetics (year 3).
2. There is a limited choice in electives. The students would like to be more flexible, for instance with a genetically modified organism (GMO) course.

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

According to the results of comparative expert evaluation of the R&D activities carried out in 2018 by the ministerial Analysis Centre MOSTA, LSMU achieved the 1st position among 10 Lithuanian universities assessed in the field of biomedical sciences (SER, diagram in Fig. 2.1.). LSMU Biomedical Evaluation Unit included Medicine, Biology, and Biophysics. In 2018–2020, 69% of all articles published by LSMU researchers working in the field of Biology were counted in quartiles Q1 and Q2 among articles with high citation rates in the Clarivate Web of Science database (SER, diagram Fig.2.3.).

LSMU researchers and lecturers of biology actively carry out a variety of research projects, both national and international. In particular, in the last 5 years the LSMU researchers (fields of Natural Sciences and Medicine and Health Sciences) participated in seven projects funded by the programme Horizon 2020.

(2) Expert judgement/indicator analysis

The examples given above demonstrate that the academic staff involved in the Medical and Veterinary Genetics field of study are active researchers who pursue serious science. Data given in the SER refer to LSMU biomedical sciences in general, and, however helpful, would be more relevant and easier to use if they focused on units/members of academic staff taking direct part in the Medical and Veterinary Genetics programme.

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

(1) Factual situation

As asserted in the SER, the latest achievements in genetic sciences and novel technological solutions are passed to MVG students during lectures, seminars, tutorials and laboratory work. It is the responsibility of the MVG Study Programme Committee to remind the subject coordinators that specific module contents need to be updated. The MVG students carry out the research part of their final theses at LSMU laboratories together with the scientists. This creates an exceptional opportunity for the students to get acquainted with the recent innovations in the field.

(2) Expert judgement/indicator analysis

Rapid development of genetics actually imposes the necessity of introducing the latest developments in the field. In the case of the LSMU academic staff this is guaranteed by the broad international cooperation and participation in important international projects (e.g. Horizon). However, there is always space for improvement. Genomics is all about big data analysis now. This is not visible in the curriculum. For example, the analysis of exome sequencing data is hidden in a course dealing with cancer. The expert panel thinks it could be worthwhile to make it more visible.

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

During the site visit the experts were informed that research laboratories are open for students all the time, particularly for working on their theses. Not only was it declared by the academic staff but also confirmed by students. All MVG students are involved in research activities while preparing their bachelor theses. They are also offered additional practical training which they can do during the entire period of their studies, at LSMU or in external laboratories. In 2018 and 2019, 30 and 29 students respectively had the additional practical training (three and 13 respectively outside LSMU).

Annex 2.1. of the SER shows that in the years 2018-2020 MVG students were involved in six scientific projects funded by the Research Council of Lithuania for student practice, and in two R&D projects, Multiomics and SMART. Ten students were co-authors of scientific articles in the same years, among them papers published in Scientific Reports or Journal of Clinical Medicine; three

students were 1st authors of the published papers. MVG students also took active part in scientific conferences, and co-authored 24 conference communications.

(2) Expert judgement/indicator analysis

The above data show that students of MGv study programme have very good conditions to start scientific activity as early as during the 1st cycle studies and that they make good use of this opportunity.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The LSMU academic staff is involved in important national and international research projects.
2. **Students are active partners in research and are co-authors of articles published in academic journals.**

(2) Weaknesses:

1. Genomics is all about big data analysis now. This is not visible in the curriculum. For example, the analysis of exome sequencing data is hidden in a course dealing with cancer. The expert panel thinks it could be worthwhile to make it more visible.
2. The data concerning the academic staff performance would be more relevant if the SER focused on units/members of academic staff taking direct part in the Medical and Veterinary Genetics programme.

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

The admission of the LSMU students is executed following the LR Provisions of the Law on Science and Studies, the LR ESSM Order, the Resolutions of the Conference of LT University Rectors, and the Rules for Admission of Students approved by the LSMU Senate in the current year. Admission to the full-time first-cycle study programmes at all HEIs is organised by the Lithuanian Association of Higher Education Institutions for the organisation of general admission (hereinafter - LAMA BPO). The main criterion for admission is a competitive score. The competitive score is accumulated by assessing the state maturity examination grades of biology (40%), Lithuanian language (20%), and the annual average or state maturity examination grades of chemistry or mathematics (20%), including one chosen optional subject (20%). Additional points can be added to the competitive

score, following the LR ESSM Order. All information about admission is available on the University website, the website also provides competitive score calculations.

During the past three years, more than 300 graduates chose the MVG study programme each year. In that period, a total of 89 students were admitted to the MVG study programme, and 62 MVG students (70% of all students in the programme) entered the state-funded places. The maximum, minimum, and average competitive scores of the students admitted to the MVG study programme during the past three years were presented in the Self Evaluation Report of LSMU. The data shows that the average competitive score of admitted students is rising every year, and in 2020, it was 7.95 out of 10.

(2) Expert judgement/indicator analysis

In summary, based on the above-mentioned data, it is evident that well-promising graduates tend to choose the MVG study programme. **According to the students, the admission criteria and process are indeed clear and well explained, and no problems arose for them. It seems that this system was developed over many years, therefore, is fully functional and does not require any changes for now.**

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

At LSMU, the evaluation and recognition of the qualifications and part-time studies acquired abroad are performed following the Provisions of the LSMU SR and the document on the Procedure for the Academic Recognition of Foreign Qualifications and the Quality Assurance System for Decision-Making. The recognition of the study results of part-time students who have studied abroad through the international exchange programmes at the international HEIs is carried out in accordance with the LSMU SR Provisions. During the last three years in the MVG study programme, there have been no applications submitted to evaluate and recognize the foreign education and qualifications gained abroad by the MVG study programme undergraduate students.

Following the LSMU Study Regulations, a lecturer-curator of the study programme at the Faculty conducts the study results' recognition of the students who have studied at the international HEIs through the exchange programmes. The Coordinator, appointed by the LSMU Rector, performs the final recognition of foreign credentials at the Study Centre.

(2) Expert judgement/indicator analysis

In general, there is a developed and defined system for evaluating and recognizing qualifications gained outside of the University. The methodology is also clear. However, this possibility could be made more public and accessible to students. During the site visit the experts found out that many students were unaware of the system's existence. This could explain the reason why in the past three years no applications were submitted to evaluate and recognize the foreign education and qualifications gained abroad.

3.3.3. Evaluation of conditions for ensuring academic mobility of students

(1) Factual situation

All LSMU students have equal opportunities to participate in the international mobility programmes and projects (*Erasmus+*, etc.) and leave for 3-12 months during the study period to the HEIs, which have signed the inter-institutional agreements with LSMU, in Europe or worldwide, and/or for 2-12 months - for the practical training to the chosen foreign institution. The *Erasmus+* exchange programme is administered centrally by the LSMU International Relations and Study Center (hereinafter - IRSC). The Center regularly (two-three times a year) organises the public and transparent selection of *Erasmus+* participants according to the selection criteria. The *Erasmus+* mobility opportunities are published on the official LSMU website and other media. The MVG students also have access to the Erasmus study and internship guides, information leaflets, instructional videos on how to register for the exchange programmes etc. They also have the possibility to contact the programme director for additional help.

(2) Expert judgement/indicator analysis

The MVG students confirm and praise the accessibility to the information about mobility programmes. The communication is well developed. However, some students feel that there are not enough partners abroad in this study programme, especially in the 2nd year. In 2020 all mobility programmes have been restricted and limited because of the current global COVID-19 pandemics. However, the years before (2018, 2019 and 2020) showed that in total, only seven students of the MVG studies went to do practical training under the *Erasmus+* programme in three years.

In the case of *Erasmus+* partial studies, between 2018/2019 - 2020/2021, there was no MVG study programme in EN at LSMU. Consequently, there were no *Erasmus+* partner and/or student exchange visits for partial studies. However, in the 2020-2021 academic year, the MVG studies have been conducted in EN at LSMU. The number of exchange students may rise in the future.

Additionally, according to the students, sometimes it is difficult to find studies that exactly correspond to the study subjects in the MVG study programme in a given semester. MVG students reported that, if the study subjects do not match in the foreign university exactly, they lose time and credits when they arrive back to their home-university. This may be discouraging.

The recommendation would be to increase the effort to motivate students to use the opportunities for study exchange, to consider adding more partners whose study subjects match in the same semesters, so the students would not be worried about losing time or credits.

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

LSMU provides students with academic, financial, social, and psychological support. LSMU has several departments where the MVG students can apply for academic support. For example, the Study, Career and Information Technologies Centers. In the case of financial support, the MVG students can receive various types of financial support and scholarships. In the SER the specific number of scholarships and financial support awarded to the MVG students during the past three academic years is published, and the numbers are satisfying. In addition, social support is provided to the students belonging to socially vulnerable groups, like people with special learning needs. Also, the university has a Sports Center that offers various physical activities for the students. Lastly, psychological support from experienced psychologists can be received.

(2) Expert judgement/indicator analysis

During the site visit the evaluation group could see that the **students are very satisfied with the support provided by LSMU**. They feel supported, happy, and never left alone in difficult situations. Many of the students celebrated the work of the Career Centre. All in all, LSMU provides students with in-depth and sufficient academic, financial, personal, social and psychological support. However, the students that started studying during Covid-19, are not familiar with all the information regarding academic support. It would be good if these students could get an additional information class, a similar one given during the integration week that was held for newly admitted students before and after the pandemic.

3.3.5 Evaluation of the sufficiency of study information and student counselling

(1) Factual situation

At the beginning of the first semester an introductory week is held, where newly admitted students can integrate into the LSMU community and get all the necessary information for their new university life. The administration and MVG SPC provide information about the studies, and the chairman together with a student lecturer-curator are responsible for the introductory week. Additionally, in the first year, students can register to the elective module "Introduction to Studies", where detailed information about the aims and objectives of the subjects to be studied is provided.

(2) Expert judgement/indicator analysis

The LSMU provides the MVG students with comprehensive applicable information about their studies and has many opportunities for counselling. The expert group evaluates the study information and student counselling very positively in general. However, there is no information week showing them the ropes. The expert panel thinks that an introductory week before starting the curriculum showing the students all these facilities would be worthwhile. At the same time, alumni can be invited this week to talk about their work to show what the students will become after they have graduated. In general, 'tea-with-alumni' sessions could be arranged in which alumni

are invited to talk about their career paths. That way the students are also informed of the future possibilities during their studies.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The LSMU encourages and offers opportunities for student mobility.
2. The LSMU offers useful, adequate and reliable student support in many areas.

(2) Weaknesses:

1. The numbers of students going abroad are still relatively low, this may be due to the lack of university partners in which the study programme matches with MVG study programme.
2. Students who started studying during Covid-19 seemed to have some information gaps, they are not familiar with all the possibilities in student support in comparison to other students.

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

The MVG study programme is full-time. It is mostly given by direct contact, although under the Covid-19 pandemics related regulations in 2020-2021 a distant e-learning virtual environment was set-up to cope with the situation. The general university study subjects are taught in the first semesters, and the higher study year semesters include the genetic modules. The subject workload is divided into contact and independent work hours. The contact lectures take no more than 30% of the contact time. At least one-third of these hours are devoted to practical and laboratory work. Elective study modules allow the students to further individualise their education although there could be more choice in electives. The practical training resulting in the final thesis is done in the seventh semester.

The following learning methods are used: group and individual work, discussions, seminars, practical work, presentations, traditional lectures, interactive lectures, laboratory work, demonstrations, consulting, wrong decision/error analysis, amongst others. The majority of theoretical lecture recordings are currently available in the Moodle. Hence, the students can always listen to the lectures at a time convenient to them. The assessment of students' knowledge and abilities is done with appropriate tests and methods. If the students' individual work/assignment was assessed during the group class, they still can discuss their mistakes and/or weak points

individually with the lecturer. The students are encouraged to actively give feedback on the intended learning outcomes, the study results, the number, and the scope of assignments and tasks. The assessments result in a cumulative grade. The cumulative part is at least 50% of the final subject/module exam grade.

(2) Expert judgement/indicator analysis

The students are satisfied with the programme. There is a lot of practice, such as RT-PCR and DNA extraction from different sources. This is done several times to get the techniques under control. In general, the study load is equally distributed.

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

(1) Factual situation

The LSMU has created suitable conditions for students with special needs or/and disabled students. LSMU used the 2014-2020 EU Structural Funds Investment Operational Programme's project funds to create the accessibility to education for the students with disabilities and special needs and the improvement of study conditions and quality. The distribution of the funds included the organisation and implementation of training for teaching staff to improve their qualifications and competencies in working with the disabled students, purchasing the equipment and furniture to install specialised workplaces for students with disabilities. The University purchased various compensatory technical devices and tools for students with mobility, visual or hearing impairments.

(2) Expert judgement/indicator analysis

The LSMU is indeed fully adapted, in terms of both infrastructure and study process, to educate students with disabilities and having special educational needs. During the site visit, the panel could confirm that students with disabilities (for example physical) can access all learning facilities equally as other students. During the interviews, the teaching staff confirmed that they do have experience working with disabled or students with special needs. Other students are very understanding, accepting and supporting as well.

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 students' learning outcomes are assessed at various levels: i) continuously at the coordinating department level, ii) two times per year at MVG SPC level, and iii) during the annual meeting with the Dean of the Medical Faculty, the Medical Faculty Council, and the LSMU Rectorate. If a problem is detected through the feedback by students and/or lecturers the courses and modules are re-evaluated and where needed improved. In addition, the assessment results of practical training and final theses defence are presented and action is taken when needed. The results of assessments are entered into the LSMU SIS system.

For the individual assessment data, the MVG students are given feedback about their achievements. Afterwards, the students' grades are entered into LSMU SIS, where the students can observe their progress. They can always ask the subject coordinating lecturer to give information on their assessments and the mistakes made in the assignments or tasks. The time intended for feedback is specified in the calendar plan. Regular discussions concerning the MVG study programme are organised with the students, teaching staff, and heads of departments. A comprehensive and detailed meeting about the learning outcomes is held at the beginning of each academic year.

The students are considered academically successful if they have fulfilled all the requirements for the study programme within the assessment period. This is used to identify the advanced students who are eligible for getting or retaining the State financial support. It also ensures necessary support for students whose academic progress is slow or insufficient. The students with academic debts are considered non-progressive until their debts are eliminated.

(2) Expert judgement/indicator analysis

As an expert panel, we feel that this is adequate. We do not see room for improvement at this moment.

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

(1) Factual situation

The LSMU monitors the graduate's employment via surveys, also uses data from state information systems. The SER (section 4.4) provided statistics that around 50-60% of graduates are employed in Lithuania. 20-30% continue studies in second cycle studies in other study programmes. In the discussions with social partners and alumni, the expert panel has not got evidence about employment of graduates in the veterinary field. Graduates mainly get employed in biotechnology industry and human healthcare institutions. Some students are afraid that a medical technologist degree may be an obstacle for a career in the biotechnology industry.

(2) Expert judgement/indicator analysis

Graduates receive a Biomedical technologist's degree. The Programme is aligned with legislation that states that the certificate that students will get when they graduate secures a job in industry. We feel that this is justified.

A number of students want to do their 2nd cycle studies after they have finished their 1st cycle studies. The competition, however, is very fierce for a 2nd cycle study in genetics. There are only 15 positions at the Vilnius University. We support an additional 2nd cycle study at the Lithuanian University of Health Sciences to redeem this issue.

Last but not least, discussions with social partners from the veterinary field may open better opportunities to be employed in this field.

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

(1) Factual situation

In general, the University fosters social and cultural diversity and ensures equal opportunities and conditions for all university employees. Measures such as the possibility of academic leave or an individual study plan are implemented to facilitate combining study with work and other personal life responsibilities. A number of students do their studies while working. In the period of 2018/2019 - 2020/2021, there were no complaints of breaches of academic integrity and principles of tolerance or non-discrimination.

The University complies with the principles of academic ethics, tolerance, and non-discrimination as stated in the Code of Academic Ethics. If academic honesty is breached by a student, a lecturer stops the examination for the respective student and writes an official report to the Dean. In these cases, the guidelines are followed for the subsequent punishments. There have been no cases of an expulsion from the University due to dishonest behaviour and ethical violations during the last three academic years.

Conversely, the students can also anonymously express their opinion on the lecturers' ethics, including bullying, harassment, and discrimination. The LR Law on Equal Opportunities and the Rules for preventing harassment, sexual abuse, persecution, and violence are followed by the department that organises the MVG programme.

(2) Expert judgement/indicator analysis

As an expert panel, we feel that this is adequate. We do not see room for improvement at this moment.

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

The guidelines are followed for procedures for submitting appeals and complaints regarding the study process and individual case investigation. If the student disagrees with the assessment of one or more of his study components and/or the assessment procedures, they have the right to appeal. There have been no complaints and appeals from the MVG students against the assessments of their studies during the last three years. There was one appeal about the assessment result of the Bachelor's theses. The Bachelor's Theses Appeal Commission analysed the appeal and investigated the case following the established procedures. This appeal was denied, and the initial student grade reapproved.

(2) Expert judgement/indicator analysis

As an expert panel, we feel that this is adequate. We do not see room for improvement at this moment.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Graduates get excellent practical laboratory technique skills.
2. Biomedical technologist diploma allows one to start a career in diagnostic laboratories.
3. The majority of theoretical lecture recordings are currently available in the Moodle. Hence, the students can always listen to the lectures at a time convenient to them.
4. The students can discuss their mistakes and/or weak points individually directly with the lecturers.

(2) Weaknesses:

1. Not sufficient focus on graduate employment in the veterinary genetics field.
2. There is a clear need for an additional 2nd cycle study in genetics, at the Lithuanian University of Health Sciences.

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

The MVG teaching staff are recruited by competition for five years to comply with the requirements of several legal acts: Code of Labor, the LSMU Lecturer, and Researcher Attestation Procedure, and the Principles of the LSMU Employee Selection and Evaluation. Each five years the lecturer's pedagogical, research, and practical work experience is evaluated. In the years 2018-2021 the total number of the MVG study programme lecturers ranged from 112 to 123. The ratio of teachers to students was 1,2, 1,5, 1,4 in the consecutive school years. The meeting with the academic staff showed that the lecturers are well organised. There are coordinators for each topic who steer the multitude of lecturers. The coordinators are very content with the students. According to their opinion the students are motivated and their feedback helps the lecturers a lot. They work very well in teams and they are very responsible. The Programme director is very active and that is appreciated by the students.

The percentage of teaching staff working at least part-time and at least three years was 80.4, 70.2, and 75.6 in the consecutive years. 20% of the academic staff teaching in the MVG study programme

held professor positions, 27.8% were associate professors, 40% lecturers, and 12.2% assistants. In the last five years, 77.8% of the MVG lecturers held a Ph.D. degree.

The scientific activity of the teaching staff has been partly commented on in the section 3.2.1 of the current evaluation report. Annex 5.1 shows the list of the MVG study programme lecturers and indicates three most significant works published during the last five years. Analysis of this data shows that 51% of these papers are both published in high-ranking journals and compatible with the taught subject while 4% appear to be entirely incompatible with the taught subject. Of teaching staff, 7% presented no publications; most of them are lecturers without degrees who are not listed as lecturers responsible for a subject/module in the study plan tables (Annex 1.2).

(2) Expert judgement/indicator analysis

Scientific activity of the academic staff assessed by the quality and number of scientific publications is sufficient to obtain the assumed learning outcomes in the Medical and Veterinary Genetics 1st cycle study programme.

We noticed that for veterinary medicine a PhD student is coordinating and does this very well according to the students. This is not a permanent staff member and hence endangers the continuity. We suggest that she is taken up in the permanent staff and that, in general, vice coordinators are appointed for the other topics.

3.5.2. Evaluation of conditions for ensuring teaching staffs' academic mobility (not applicable to studies carried out by HEIs operating under the conditions of exile)

(1) Factual situation

All lecturers may participate in international mobility programmes and leave for teaching/training from two days to two months at foreign institutions which have signed the bilateral agreements with LSMU. This is coordinated by the International Relations and Study Centre. Information about the Erasmus+ mobility opportunities is easily accessible on the LSMU website, IRSC website and disseminated using various pathways. IRSC also organises informational sessions on the Erasmus+ programme in the faculties. The percentage of the lecturers going abroad (to all lecturers) dropped in the last years from ca 10% to 0%.

(2) Expert judgement/indicator analysis

The conditions for academic mobility at LSMU are generally good, which was confirmed at the meeting with teachers. The drop in mobility is caused by the pandemic situation and has to be reversed.

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

(1) Factual situation

The Innovative Education Department is responsible for monitoring and developing lecturers' pedagogical competencies. During the 5-year term, all lecturers are obliged to dedicate at least 30

academic hours to participating in educational projects and they have to prepare the self-evaluation reports.

The academic staff may participate in the international staff training weeks organised by foreign partners. This helps to improve and deepen professional knowledge, teaching competencies and international communication skills of the staff.

(2) Expert judgement/indicator analysis

Each five years the teaching staff is evaluated along the lines of their career going from postdoc to assistant professor to associate professor to full professor. Although the path is clear, it is mostly research based. There are no special tracks for staff that are interested in teaching rather than research. We would like to suggest such a track accompanied by a teaching qualification, the latter of which is usually offered by the university (https://www.universiteitenvannederland.nl/en_GB/utq).

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Academic mobility of lecturers is supported by HEI.
2. International training weeks help to deepen professional knowledge, teaching competencies and international communication skills of the staff.
3. This programme director is very active and that is appreciated by the students.

(2) Weaknesses:

1. The subjects taught in the MVG programme do not appear to be compatible with research interests of a significant percentage of lecturers, as shown in Annex 5.1.
2. For veterinary medicine a PhD student is coordinating and does this very well according to the students. This is not a permanent staff member and hence endangers the continuity. We suggest that she is taken up in the permanent staff and that, in general, vice coordinators are appointed for the other topics.
3. There are no special tracks for staff that are interested in teaching rather than research.

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

There are auditoriums, classrooms and computer classes, training laboratories, and well-equipped individual workplaces with visual aids, boards, screens, personal computers, laboratory desks, microscopes, and such like. It is possible to work with an average group of 25 students in these facilities. They meet all the requirements of occupational safety and hygiene norms, are equipped with modern video and audio equipment and appropriate demonstration means. Fire safety equipment, first aid kits, and eyewash showers are installed in auditoriums, offices, and laboratories. Each year, the equipment in these teaching rooms is analysed and new tools are acquired if necessary.

The library has 139 work seats, free Wi-Fi, and is open on Monday to Friday from 8 am to 8 pm, and Saturday from 10:00 am to 6 pm. The MVG students and all members of the academic community have access to the library services. These include more than 1,000 genetics-related books, parts of books, and scientific journals. Also the licensed software RefWorks and Biosphera can be used, as can the open-access software Arlequin ver 3.5.2.2, Qiagen Digital Insights, Primer3Plus, DNA Surveillance, Technelysium, and BLAST. The accessible open-access databases OMIM, Genereview, Warsaw, Clingen, LitVar, LOVD, GNOMAD, RexSeq, and Franklin are also available. The Library and Information Center staff organises short-term courses for the teaching staff and students throughout the year to get more acquainted with these information resources. In addition, there are four computer classrooms, in which the computers have different software available, including SPSS and MATLAB. The virtual laboratory simulation programme Labster is used to train the MVG students.

(2) Expert judgement/indicator analysis

As an expert panel, we feel that this is adequate. We do not see room for improvement at this moment. The facilities are really good.

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

(1) Factual situation

The evaluation of the learning resources takes place at several different levels. The first level is at the department that is responsible for teaching a particular module. If there is a need to update the resources, the head of the department addresses the MF Dean, who can take action. The second level is at MVG Study Programme Committee, which considers the necessity of new learning

resources and submits suggestions to the MF Dean. At the third level, the students can inform the module coordinating lecturer or SPC about the need for new learning material resources. They can also express their wishes in the semester's meetings with the SPC members and lecturers.

(2) Expert judgement/indicator analysis

As an expert panel, we feel that this is adequate. We do not see room for improvement at this moment and think there is enough opportunity for feedback concerning the evaluation of the learning resources.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The integration of feedback about the evaluation of the learning resources on three levels: the students, the teachers, and the SPC.
2. Learning facilities, laboratories very well equipped and available for study process

(2) Weaknesses:

1. There are no obvious weaknesses in the learning facilities and resources. All is up-to-date and accessible.

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 LSMU as an institution has a strong focus on quality assurance and all its elements are applied to the MVG study programme. Internal quality management principles and procedures are available in LSMU Statute, University Strategic Development Guidelines, LSMU study regulations, LSMU Regulations of Study quality assurance , SPC Regulations , Feedback Organization Procedure for Improving the Quality of Studies at LSMU (see SER, section 7.1). The SPC is mainly responsible for the quality of the MVG study programme and applies the state, university, and faculty level quality assurance procedures. Innovative tool for surveys - Quality thermometer has been implemented since 2019 to evaluate in a standard way the quality of teaching and studies (see SER, section 7.4). The MVG study programme is constantly being changed and improved to address the needs of stakeholders. The annual work plans and reports of MVG SPC are well documented and publicly available (<https://lsmuni.lt/lt/struktura/medicinos->

akademija/medicinos-fakultetas/studiju-programu-komitetai/). This undoubtedly reflects the attitude of the SPC to constant quality improvement.

(2) Expert judgement/indicator analysis

The expert panel judges that the MVG study programme quality is very good and the changes meet the required needs of stakeholders. Various quality measures (surveys, Quality Thermometer) are used, responsibilities well defined.

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

(1) Factual situation

Students are actively involved in the MVG study programme improvement via surveys. Surveys are taken twice within an academic year, after autumn and spring semesters. 65 to 114 students, the majority, participated in regular surveys during the years 2019 - 2021. Examples of adjustment of the study programme to students' needs are given in the SER, section 7.3. Students have representatives in the SPC. Thermo Fisher Scientific Baltics also have their representative in the SPC. This company is not directly involved in the medical and veterinary genetics field and therefore may not be the most valuable partner for the MVG study programme. In the SER and during the evaluation visit the expert panel have not seen much evidence of social partner involvement in the MVG study programme quality assurance.

(2) Expert judgement/indicator analysis

The system of collecting the "voice of students" is very well developed, and it is perfectly used for internal quality assurance. The expert panel heard numerous opinions about veterinary genetics perspectives in the region from social partners during the evaluation visit. The panel would recommend to have discussions with social partners to collect ideas for study programme improvement, especially for the veterinary genetics part to address the current and future needs of industry.

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 quality evaluation tool called Quality Thermometer is implemented in the LSMU and is used as one of the ways to monitor quality. Collected information on study subjects is made publicly available and used to react quickly to students' opinions. It is worth mentioning that Quality Thermometer results show higher MVG study programme quality scores year over year compared to the average of the LSMU. For example, average evaluation values for MVG study modules in the years 2020 and 2021 were from 1.11 to 1.22, compared to LSMU averages from 1.03 to 1.08 accordingly. Support for the study programme administrator was evaluated as 1.39 for MVG, compared to LSMU average value of 1.12 (SER, tables 7.2 and 7.3).

(2) Expert judgement/indicator analysis

The expert panel finds that LSMU has a very well developed system for collection and publication of information on studies.

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

In the SER, section 4, survey data is provided from graduates of the MVG study programme: “47% of the respondents indicated that they were satisfied with the knowledge and skills acquired at the University, 40% noted that the study conditions were good”. There is ample opportunity for the students to give feedback. The SPC, in which the students are well represented, reacts immediately to the feedback given and takes action whenever necessary. The lecturers/courses are evaluated in a grading system from -2 to 2. If the score is lower than 1, the SPC responds directly to the dean or head of the department. Active implementation of many changes in the MVG study programme and the intense quality management, shows willingness of the SPC to enhance students’ satisfaction.

(2) Expert judgement/indicator analysis

The expert panel thinks that quality assurance processes are very well arranged. The expert panel is convinced that the SPC is reactive to feedback. More focus should be given on low quality aspects that could be counteracted. For example SER table 7.3: the quality of teaching has the worst evaluation, 0.98 in the Quality thermometer.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Quality assurance procedures are in place with defined responsibilities that efficiently implement study programme improvements.
2. The changes in study content as managed by the SPC are well documented and publicly available.

(2) Weaknesses:

1. Involvement of social partners, especially in the field of veterinary diagnostics.
2. More focus should be given on low-quality aspects that could be counteracted.

IV. EXAMPLES OF EXCELLENCE

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

Several features of the Medical and Veterinary Genetics programme at LSMU have an exceptional character. The most important among them is an **opportunity of taking part in the research work, which is created for students practically from the beginning of their studies**. This is possible due to a special attitude of the teaching staff who are willing to devote extra time and effort to introduce young adepts into the world of science earlier than it is commonly practised.

Another outstanding feature is a special care of the teaching staff for resources. The MVG students have access to a very good, modern clinical infrastructure, they also have direct access to patients and work with real clinical samples. The results are clearly visible in the high research activity of students, which is rather unusual for undergraduates.

V. RECOMMENDATIONS*

Evaluation Area	Recommendations for the Evaluation Area (study cycle)
Intended and achieved learning outcomes and curriculum	<ul style="list-style-type: none"> • There are only a few students opting for veterinary genetics, which could also be caused by the fact that students should first select their internships (year 2) and only then are introduced in veterinary genetics (year 3). The committee suggests that this should be changed and turned around. • Molecular and cellular biology could be taught earlier in the study programme. • The expert panel suggests to use so-called 'rubrics' or other types of grading forms to be sure that the aims set for presentation and laboratory work and such like are met. • The social partners could be more involved in study programme management rather than only give lectures. • A short course of 1.5 credits on soft skills competence, such as planning, communication, and such like, would be worthwhile. • There should be more choice in electives.
Links between science (art) and studies	<ul style="list-style-type: none"> • Genomics is all about big data analysis now. This is not visible in the curriculum. The expert panel thinks it could be worthwhile to make it more visible.
Student admission and support	<ul style="list-style-type: none"> • Students that were newly-admitted during the pandemics lack information about the academic support they can receive. An additional information class with an overview would be helpful. • The numbers of students going abroad are still relatively low. This may be due to the lack of university partners in which the study programme matches with MVG study programme. We think that this could be improved. • 'Tea-with-alumni' sessions could be arranged in which alumni are invited to talk about their career paths.
Teaching and learning, student performance and graduate employment	<ul style="list-style-type: none"> • Closer collaboration with veterinary genetics social partners and focus on better graduate employment in the veterinary genetics field would be desirable. • There is a clear need for an additional 2nd cycle study in genetics, at the Lithuanian University of Health Sciences.

Teaching staff	<ul style="list-style-type: none"> • Conformity between the practised research and educational activity needs to be reviewed for the teaching staff. • For veterinary medicine, a PhD student is coordinating and does this very well according to the students. This is not a permanent staff member and hence endangers the continuity. We suggest that she is taken up in the permanent staff and that, in general, vice coordinators are appointed for the other topics. • There are no special tracks for staff that are interested in teaching rather than research. We would like to suggest such a track accompanied by a teaching qualification.
Learning facilities and resources	<ul style="list-style-type: none"> • No major improvements are currently recommended, the status quo has to be maintained.
Study quality management and public information	<ul style="list-style-type: none"> • Social partners could be involved, especially in the field of veterinary diagnostics, to provide feedback for study programme management. • More focus should be directed towards low-quality aspects of teaching that could be improved.

VI. SUMMARY

Main positive and negative quality aspects of each evaluation area of the study field *Genetics* at Lithuanian University of Health Sciences:

The following is a summary of the findings of the expert panel based on the Self-Evaluation Report (SER) and the interviews with the University administration (senior management and faculty administration staff), staff responsible for the preparation of the SER, teaching staff and stakeholders (students, alumni, employers, social partners). The expert panel gives a **positive** evaluation for Medical and Veterinary Genetics. Areas 1-4 and 7 were assessed as very good, area 5 (Teaching staff) was assessed as good, and area 6 (Learning facilities and resources) - as excellent.

The 1st cycle programme in Medical and Veterinary Genetics enables the graduates to become employed in a variety of institutions using the newest genetics technology. It also establishes a solid basis for a 2nd cycle of study in various areas of life sciences. All information describing the programme aims and organisation is publicly available on the LSMU website, with a yearly update introduced by the study programme committee. A visible weakness of the programme is that only a few students choose veterinary genetics for their final theses whereas veterinary genetics appears to be at an equivalent position to medical genetics. Potential organisational obstacles that were signalised at the meeting with students should be removed. According to the alumni opinion, molecular and cellular biology should be introduced earlier into the study programme. Also, the choice in electives needs to be extended, and a short course developing soft skill competencies such as planning and/or communication would be profitable. The use of social partners' experience could be broadened by inviting them to the study programme committee as advisors.

An important strength of MVG studies is the research activity of the teaching staff, their involvement in national and international research projects, and willingness to share both types of professional activity with students. As a result, students are active partners in research which is reflected in the co-authorship of scientific publications. The latest achievements in genetic sciences and novel technological solutions are introduced in various educational forms, however an important improvement is necessary. It would be worthwhile to make 'big data analysis', the basis of modern genomics, more visible in the curriculum.

LSMU offers useful, adequate and reliable student support in many areas. Among others, the university encourages and offers opportunities for student mobility. Nevertheless relatively few students go abroad which may result from a mismatch between MVG and partner universities study programmes.

MVG graduates get excellent practical laboratory technique skills due to the early offer of participating in the lab work. This, together with the biomedical technologist diploma enables them to start a career in diagnostic laboratories. However, focus on graduate employment in the veterinary genetics field is insufficient. This is reflected in a much lesser contact of the students with practical veterinary genetics, and in the strong medical bias in both student and staff approach to choosing a topic for the final thesis. We suggest that both areas included in the name of the

studies should be more evenly represented in the curriculum, particularly at the stage of final thesis preparation.

Two issues are very positive in the study organisation. Firstly, recordings of most lectures are available in the Moodle, which offers students flexibility in adjusting the learning time to their individual needs. Also, students can express their doubts and discuss their mistakes individually, directly with the lecturers.

All members of the panel agree that there is a clear need for a 2nd cycle study in genetics, at the Lithuanian University of Health Sciences.

LSMU creates good conditions to improve the competencies of the teaching staff. International training weeks help to deepen professional knowledge, teaching competencies and international communication skills of the staff. Also academic mobility of lecturers is supported by HEI. There is however a weakness that needs attention. The subjects taught in the MVG programme do not appear to be compatible with research interests of a significant percentage of lecturers. This conclusion is based on analysis of data shown in Annex 5.1. The majority of descriptive data given in the SER, concerning scientific performance of the lecturers refers to the HEI. In future, a SER should focus on units/members of academic staff taking direct part in the Medical and Veterinary Genetics programme. SER could also have numbered pages which would help the panel to navigate in this document. There are no special tracks for staff that are interested in teaching rather than research. We would like to suggest such a track accompanied by a teaching qualification. We also suggest that the study coordinators should belong to permanent university staff.

Learning facilities, lecture/seminar rooms as well as laboratories are very well equipped and available for the study process. The students, the teachers, and the study programme committee provided identical, positive feedback on the evaluation of the learning resources.

Quality assurance procedures are observed, with well-defined responsibilities that efficiently implement study programme improvements. Changes in study content as managed by the Study Programme Committee are well documented and the results are publicly available. Deficiencies in this evaluation area involve poor representation of social partners, especially in the field of veterinary diagnostics. More focus should also be given to low quality aspects of the educational process that could be counteracted.

The panel members wish to thank the LSMU staff for a very efficient organisation of the site visit, warm and supportive atmosphere, and for several interesting and informative discussions.

Expert panel chairperson's signature:
Prof. dr. Halina Gabryś