STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

LIETUVOS SVEIKATOS MOKSLŲ UNIVERSITETO STUDIJŲ PROGRAMOS *MEDICININĖ IR VETERINARINĖ GENETIKA* (612C43001) VERTINIMO IŠVADOS

EVALUATION REPORT OF *MEDICAL AND VETERINARY GENETICS* (612C43001) STUDY PROGRAMME AT LITHUANIAN UNIVERSITY OF HEALTH SCIENCES

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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	Medicininė ir veterinarinė genetika
Valstybinis kodas	612C43001
Studijų sritis	Biomedicinos mokslai
Studijų kryptis	Genetika
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (3,5)
Studijų programos apimtis kreditais	210
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Medicininės ir veterinarinės genetikos bakalauras
Studijų programos įregistravimo data	2011-04-08

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	Medical and Veterinary Genetics
State code	612C43001
Study area	Biomedical Sciences
Study field	Genetics
Kind of the study programme	University Studies
Study Cycle	First
Study mode (length in years)	Full-time (3,5)
Volume of the study programme in credits	210
Degree and (or) professional qualifications awarded	Bachelor of Medical and Veterinary Genetics
Date of registration of the study programme	08/04/2011

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I. INTRODUCTION

The Centre for Quality Assessment in Higher Education in Lithuania (SKVC) has started the procedure of evaluation of the Bachelor studies programme in Medical and Veterinary Genetics at the Medical Faculty, Lithuanian University of Health Sciences according to the Procedure for the External Evaluation and Accreditation of Study Programmes approved by Order No ISAK-1652 of 24 July 2009 of the Minister for Education and Science of the Republic of Lithuania (Official Gazette, 2009, No 96-4083) and in accordance with the Methodology For Evaluation Of Higher Education Study Programmes (Order No 1-01-162 of 20 December 2010 of the Director of the Centre for Quality Assessment in Higher Education)

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II. PROGRAMME ANALYSIS

The BSc studies programme in Medical and Veterinary Genetics is a recently opened (in 2011) training programme targeted for training a profession of genetics in medicine and veterinary genetics. Self-evaluation of the programme was carried out by a team established by the Rector's order (no V-935, 27-11-2012).

1. Programme aims and learning outcomes

The aims of the Study Programme presented in the SER p7 (point 9) are well defined, and are convincingly based on academic and professional requirements in the rapidly developing field of genetics. The progamme equivocally states the goals to prepare educated young researchers, who are open to innovations in science, critically thinking, qualified genetic

specialists, who would have fundamental knowledge and ability necessary to work in the field, and who are able to perform genetic tests independently using methods of analysis, following good laboratory practice and rules of ethics. However, although there is a positive emphasis on the scope to provide practical skills throughout the study process, it should be balanced with the general theoretical knowledge provided in the programme. The aim and learning outcomes are prepared according to Dublin descriptions, and the objectives correspond to the requirements of legal acts of the Republic of Lithuania and EU.

The scope of the programme is 210 ECTS with 30 ECTS distributed evenly through the each semester of the studies. The study programme is comprised of general and specific competences. The learning outcomes and competences of the study programme (pp.8-11) in regard to general competence include capabilities (i) to work in a team when solving speciality-related issues, and continuous improvement of professional skills; (ii) to apply the most recent advances in fundamental and applied sciences in the field. The learning outcomes and competences of the study programme (pp.8-11) in regard to specific competence include abilities (i) to perform human and animal biological tests and analyse the results of laboratory investigations; (ii) to test human and animal genetic diseases; (iii) to improve the farming qualities of animals; (iv) to evaluate the influence of environment and biological factors on genetic material. The purpose is to provide genetic specialists for healthcare institutions, veterinary and food safely services, research laboratories of applied and fundamental natural sciences.

Still, the aim and learning outcomes appear quite narrow in order to fulfill the expectations for a bachelor level programme. Moreover the SER team emphasized the high necessity to prepare BSc-level medical and veterinary genetics specialists, the employers and the students do entirely share this view (site-visit, Nov 5th, 2013). All the employers met during the site-visit stressed the necessity for broader BSc-level education in biomedicine, molecular biology or just biology as there is equally need for e.g. microbial and plant geneticists/biologists etc. They also pointed out that the labor market is interested rather in the MSc-level specialists with the initial broader bachelor training. The students expressed their concern about their future, as there is no inter-related MSc programme in the same field of study offered at the University and the perspectives on the labor market are unclear.

It is important to stress that the study programme is still in the process of development and assessment relaying on the currently available data. It is a new programme and it needs some improvements. It would be good to take into consideration the needs of the labor market and other needs in the region and provide more options for the students. The study programme title

could be reconsidered to cover wider area. The aim of the programme should be appropriate to the competencies provided by the academic bachelor level training.

The teachers were trained in the field of learning outcomes (LO) technology, although the attendance was not high. Further improvements are needed in the area of constructing measurable LOs. For all courses, LO should be defined in a measurable way and consistently with the bachelor level requirements and level 6 of EQF. The content of the studies should be built in blocks starting from general to more specific, providing sufficient credits for the basic subjects, like Anatomy, Basics of Chemistry, Basic Molecular Biology and Cell Biology, Higher Mathematics, Microbiology and Virology. The content should be comparable with the similar type of studies in other countries and in Lithuania providing bigger chances to graduates that are competitive to the MSc-programmes in the field.

2. Curriculum design

The scope of the 3.5 year full-time study programme is 210 ECTS. The credits are distributed evenly among the semesters, with 30 ECTS workload distributed to every semester. The study subjects are divided between general university study subjects (15 credits, 7% of the programme), field/speciality study subjects (180 credits, 86% of the programme; includes 15 credits of laboratory practice and 15 credits for thesis preparation), optional subjects (15 credits, 7% of the programme). No more than 10-11 study modules are introduced in the timetable during a year. The workload of the student comprises 4140 hours. Auditorium's work (contact hours) cover 70% of total hourly time and include lectures, seminars and laboratory practice, while self-study covers 30% of time of each study module. The study programme is divided to provide the first two years of basic knowledge and skills in life sciences and the rest 1.5 years for more specialized courses and BSc thesis work. However, the overall length of the study programme (3.5 y) is untypical and inconvenient for efficient follow-up studies (as resulted from the meeting with students, site-visit Nov 5th, 2013). Suggestions were either to shorten the programme to 3 years or extend (preferred) it to a 4-year- BSc programme typical for Lithuanian higher education system. The additional 0.5 years of the studies should be devoted to provide deeper, up-to-date knowledge in genetics and genomics. This could provide the opportunity to rethink the programme and introduce more practical activities.

In general, learning outcomes of the courses are defined in accordance with the aims of the study programme and in accordance with the legislation. In the majority of modules, every outcome has its specific study methodology and assessment methods so the outcomes fulfillment can be measured on the basis of the assessment (examination results, defense of BSc thesis). The study programme (Table 4) does not take into account the difference in importance and extent of

each subject as all the subjects are taught 100 hr (5 credits); the information on the proportion of lectures, seminars and practicums for each subject should be provided. Schedule and length of each course should be consistent with its content and amount of provided information as well as with the learning outcomes intended. The feedback from the students regarding their workload for completing the discipline and reaching the intended learning outcomes should be considered.

Overall, the content of study subjects better meets the aims of Msc level compared to BSc level as it is rather narrow and specific. Some basic academic courses in life sciences, essential in the field of biomedicine are missing such as for example Basics in Physics for biologists and biomedicine, Basics in Chemistry for biologists and biomedicine, Organic chemistry, Higher mathematics. Some essential subjects (e.g. Human Anatomy, 2 weeks; Animal Anatomy, 2 weeks) for the study programme are taught during a very tight period (site-visit, Nov 5th, 2013). Some existing courses are very narrow and specific for the bachelor level or not directly relevant to the study programme and could be shifted to optional ones for example 'Genetically modified organisms', 'Psychogenetics', 'Hematology and homeostasis'. Instead, there should be extended training in bioinformatics and contemporary molecular methods in genetics (meeting with students, site-visit, Nov 5th, 2013). Students of the programme indicated a number of redundancies in the content of various subjects related to genetics (e.g.' Genetic Engineering', 'Genetic Modified Organisms', 'Veterinary Genetics') (site-visit, Nov 5th, 2013). The content of each subject should be critically analyzed in order to avoid redundancies.

The Study Programme should provide a wider background in the field, thus making graduates of this programme more competitive candidates for the different MS programmes.

3. Staff

This programme engages academic staff of 76 teachers. Professors and associate professors make 55.3% of the teaching staff, which is above the legal requirements (40%). 86.8 % of the teachers have a scientific PhD-degree which exceeds the legal requirement for the BSc studies. It was rather difficult to asses whether the workload does not exceed the legal limit. In conclusion, the staff has high qualification to ensure learning outcomes. The number of teachers (76) involved in this programme is adequate for the number of entering students (annually 37-39). 61.8% of teachers are 35-54 year old. The teaching staff is certified every 5 years in accordance with the procedures set by LUHS Senate (resolution No 4-3, 23-12-2010). The teachers demonstrated sufficient experience in training of scientists at undergraduate level. PhD students recruited in the assistant positions also take part in the study process. They help to conduct laboratory and practical works together with the senior teaching staff according to the departments' financial possibilities. However, there was no information provided on the

respective training of the PhD students prior to their work as the teaching assistants at the university level courses.

Experts noted that there is an under-representation of the teachers/researchers from the field of genetics among the staff (site-visit, Nov 5th, 2013). To the knowledge of the evaluation experts, only one teacher was incorporated specifically for this programme. The few teachers involved in genetics (only two genetics experts present at the meeting with staff during site-visit) are expected to teach the numerous subjects related to genetics in the programme and this in turn leads to the redundancies in their content. Concerns about the quality and redundancy in the genetic subjects were expressed also by the students during the site visit (site-visit, Nov 5th, 2013).

Lectures for the evaluated programme are read generally for students of the whole course (up to 39 students). During the laboratory and practical classes a teacher often works with a group of 13-15 students, albeit not in all of them - some laboratory training is organized for the groups of 4-5 students.

Teaching staff in the University usually sign a fixed – term contract. Teacher's turnover is very rare and the main reasons are: getting into a higher position, retirement or going on pregnancy – childbirth and child-rearing leave. The new members of teaching staff are mostly recruited from the participants of the LUHS PhD studies. It was not possible to further evaluate teachers' turnover, because the studies of the evaluated programme is going on only for two years by the time of the evaluation. Across last five years, the staff's research and publication activity in the leading national and/or international journals: in total 445 publications, including 217 in internationally peer-reviewed journals listed in ISI WoS. The average number of scientific articles per teacher is 5.8, and average number of publications in international ISI Web of Science journals is close to 2.8/year. The Impact factor of approximately 1.1/ publications (and only 0.5 ISI WoS articles) per year is low and reflects low quality of conducted research in international context.

In summary, it is important to stress that the course is implemented mostly by the teachers representing basic medical fields, not by the specialists in medical and veterinary genetics. The teachers should take further efforts to fulfill the legislation criteria regarding the research publications and be up to date in research. Highly competent experts from both academic (within the same university or other universities) and private institutions may be invited and engaged in both theoretical and practical implementation of the programme. Mobility of the teachers should be encouraged especially in regard to participation in internships (currently 16 cases during 5 years across 76 teachers) and exchange programmes (25 cases).

4. Facilities and learning resources

The MGV Programme is implemented under the general LUHS studies organization in combination with other BSc programmes for general courses. The list of the premises for the implementation of the study programme includes 18 auditoria for lectures and seminars (accommodating 20-200 students). The majority of lectures and practical work takes place at the central university building, an educational laboratory building, at MA and VA University places (two separate campuses located in distance). All this premises and the arrangements between the Faculty of Medicine and the institutions that take part in the implementation of the programme ensures the adequate provision of the study programme. The majority of auditoria and rooms have multimedia equipment, computers, and internet access. In addition, there are 4 computer classrooms with places for 132 students. There is up-to-date laboratory equipment for the most practical training for the provision of the study programme, and the practical training is planned for approximately 20-25 students simultaneously. It is to be noted that, the number of students simultaneously attending the practical training is too high and thus, the efficiency of teaching is not maximized.

The University presented the new equipment for the genetic analysis that potentially might be used for students' trainingship. However, the working space for the practical exercises appears to be tight. Practical training laboratories have access to (real-time) thermocyclers, spectrophotometers, electrophoresis apparatuses, vortexes, centrifuges, microscopes (20), DNA sequencing apparatuses (capillary sequencing), stations for up-to-date cytogenetic analysis. Still, it was not clear in what extent these apparatuses were included into the practical training of students or those are kept only for the research scope. At the meeting with the students (site-visit, Nov 5th, 2013) there were mentioned practical training in performing the following methods: PCR, DNA isolation, gel electrophoresis. In addition, it appeared during the site visit to the practical training laboratories that there is not enough attention paid to the safety issues and the students are not trained in laboratory safety.

The Faculty is engaging all diverse resources in the research institutes and other institutions for the provision of the study programme. Students have access to the online international databases, and they should be encouraged to use them more often. This could be furthermore developed offering more online teaching-learning resources. For the 3rd year students, a list of labs/places for starting professional practical training is provided. However, no consistent monitoring of the students involved in this training was proved. The research training options include both, scientific laboratories and routine clinical /private laboratories. According to LUHS regulations, the institution for practice must meet the requirements for programme learning outcomes. The institution is assessed for appropriately qualified tutor and a list of

sufficient number of procedures allowing acquiring certain skills for students. Some of the scientific laboratories agreed to participate as the practical training sites for the BSc thesis, are not from the field of medical and veterinary genetics (e.g. in plant genetics) (site-visit, Nov 5th, 2013). It is not clear how the basic theoretical education required to perform BSc thesis is provided in these centers. In practice, a large fraction of proactive students choose the laboratory for their BSc thesis research by themselves, already during the 1st or 2nd year of studies (site-visit, Nov 5th, 2013). Approval of these self-chosen research training sites has not yet been established by the programme. Therefore, we recommend developing a more complex system to monitor whether these trainings reach their intended learning outcomes. Although research at the self-chosen training site might offer different experiences to students, it should provide somewhat standardized learning outcomes at the end.

The main library for learning resources is the newly built university library. The libraries are equipped with the electronic search systems, familiar to the students and academic staff. Library has over 600 000 copies of books with new publications acquired every year. The online access to scientific journals and databases is ensured. Dormitories have reading room with internet access (396 workstations and 142 with internet access). In addition to the main library, students are welcomed to use VA division of the LUHS library, also renovated only in 2008. The main publications and books necessary for MVG studies are available at the LUHS library and reading room. SER states that for each study subject there are 2-3 textbooks, each with at least 20-30 copies; and 2-3 methodological aids (descriptions of laboratory practice, power-point presentations etc). However, at the meeting with the students (site-visit, Nov 5th, 2013) it appeared that basics textbooks are the main learning resource only during the first year of studies; from the 2nd year onward study material is provided mostly using the power-point slides. In order to guarantee systematic and complete BSc-level education in the field, the study process would benefit from the up-to-date internationally acknowledged basic textbooks for the courses of the main subjects of the programme - genetics, human genetics, medical genetics, veterinary genetics etc.

5. Study process and student assessment

The adequate rules for the admission of the students are enacted by the Lithuanian Higher Education Institutions Association for Lithuania higher education undergraduate and integrated studies (LAMA BPO). The most important admission criterion is a competitive score generated by summing up some subjects‘results multiplied by appropriate weighting factors (WF), the subject with the highest WF is biology. The minimum score to be listed as competitive for admission is 35% of the highest possible score. In the 2 years of running the programme, the

number of submitted applications was very high compared to the number of admitted students, in 2011 - 564 applications, 39 students; in 2012 - 700 applications, 37 students. As the admission/application ration was as low as 1:17, the academic performance of admitted students is expected to be high as only the best applicants were admitted. Among applications around 11% indicated this programme as the first choice, but among there 16% passed the admission.

The students' progress is followed by class attendance, intermediate and final examinations. There was 3 drop-outs among the 39 students (7.7%) who were admitted in 2011, one of them is going to continue after academic vacation year. Studies are organized with equal workload per day (6 academic hours) and week (30 hours) with 30% of time for independent work. The SER states that students are encouraged to participate in projects carried out by LUHS research societies, and to participate in student mobility programmes (e.g. ERASMUS). However, the students expressed strongly that mobility is little supported by the university level and instead, student mobility is promoted and facilitated through student organizations (site-visit, Nov 5th, 2013). Staff mobility should be supported simultaneously in order to encourage students to take up the challenge of being part in such exercises. Nevertheless, a strategy for internationalization could be developed at faculty level, following the university scope and mission and bringing more international experts closer to the programme using the technology developments.

The dissemination of information about the MVG programme is performed according to the general dissemination rules. The SER informs that detailed information about the aims and objectives of a subject studied is provided in the Study programme plan published at the website of the university; and the schedule of classes and exercises is publicly available. The student feedback in this issue stated clearly that the available information on the programme aim and study content was insufficient and limited to the fist year of studies (site-visit, Nov 5th, 2013). The examinations are scheduled in advance and publicly announced via University website. There is also an option to study the individual programme set up according to the study plan, student's request and Regulation Study; taking an academic break is formally regulated (3 times up to a year during all studies). Student scholarship and support granting is regulated by the documents of LUHS senate in accordance with the respective decision of Lithuanian government. Students may be granted social scholarships, scholarships for academic achievements or a one-time scholarship for academic achievements, but not many information about this could be found.

Students at the study programme are keen, enthusiastic and proactive. However, in order to encourage their initiatives, professional English courses and scientific writing should be provided. This could support mobility and independent-work as future researcher. Moreover, the

internships are not organized by the university or Faculty and there is no adequate procedure for organizing or monitoring the quality of internships though they are sought by the students as valuable experiences and a way of facilitating the transition between the studies and the workforce market. Therefore students individually and randomly try to find a place for internship. Likewise, the role of the career centre in the career planning is not significant in the academic community, though they could provide many useful services both to students and to faculty members.

In the attempt of creating a perfect learning environment, safety regulations and implementation during the courses should be assured.

The assessment of students' achievements is based on the principles described in the LUHS regulations and in the description of each subject (provided in detail in SER, pp26-27, points 72-73). It is compatible with other national and international documents. The evaluation system is based on recommendations of Lithuanian Ministry of Education and Science (2009) – validity, reliability, clarity, usefulness, objectivity, publicity. Students are directly informed about the evaluation of their achievements. No final BSc theses have yet been prepared (regulated by requirements affirmed by the council of the faculty) and there are no graduates yet from this programme as introduced only in 2011. We recommend however to train teachers in creating assessment options in order to verify the students' performance regarding the reach of the intended outcomes.

As far as the social dimension is concerned, the student support services are well organized, including psychological support, consultations in career possibilities, health care, but they don't seem to be fully engaging students that in the end do not benefit from them. University is offering accommodation in dormitories for 1674 students. In campuses, there are centers for social interaction, e.g. student's canteens, sport complexes, possibilities to be engaged with music, e.g. choirs. Student Information System (SIS) is being introduced.

6. Programme management

The study programme has been prepared in accordance with the General Requirements of the first degree and integrated study programmes. LUHS has planned internal monitoring on the development, improvement and management of this young BSc study programme. The programme is run under the approval by the LUHS Senate.

Study programme administration and the quality assurance is well placed, and the procedures are precise. However, much could be still done regarding the internal quality assurance system – better involving teachers and students, raising the transparency of the internal evaluations of the satisfaction regarding the quality of disciplines, etc.

The overall responsibilities for the organizing and controlling the learning process of MVG are taken by the Dean and the Council of the Faculty of Medicine, LUHS. LUHS Study Centre is involved in coordinating the study schedules and classroom availability. Committee of the Study programme is responsible for the implementation and ongoing monitoring of the quality; for analyzing the content of the subjects to avoid duplication; for integrating departments involved in MVG. However, the Committee could strengthen its role in efficient leading and monitoring this young study programme to guarantee the improvement of its curriculum and implementation according to the recommendations by international experts, and feedback from students and representatives of labor market.

The management procedures are established, modernized in the last few years, and attempted to be orientated towards quality assurance. Since the programme is still developing even more attention should be paid to the assessment of student performance, students feedback about the programme and also needs of labor market.

III. RECOMMENDATIONS

1. The aim and learning outcomes have to be broadened out in content to fulfill the expectations for a bachelor level programme; the programme should be more extended to the needs of labor market and to provide more options for students; the programme should be more extended to provide broader BSc-level education in biomedicine, molecular biology or just biology

2. Learning outcomes should be measurable and comparable with international standards of bachelor level as well as better reflected in both activities and assessment methods; the graduates of the programme have to reach the level of training enabling to compete for the admission to the national and international MSc-programmes in the field.

3. The curriculum of the study programme should be revised; the main content of the studies should be focused on general and basic academic courses in life sciences, biomedicine, genetics and molecular biology; there are specific and narrow study subjects that may be designed as optional courses.

4. It is recommendable that the programme extends to a 4-year BSc programme typical for Lithuanian higher education system

5. Schedule and length of each course should be consistent with its content and amount of provided information; redundancies have to be avoided.

6. The study programme is in a very rapidly growing field; therefore the teaching staff and students should be more encouraged to use outgoing and incoming possibilities (including

mobility) to keep up with the newest technologies and research results; Teaching staff has to be motivated for the high quality research.

7. The programme should hire more PhD-level teachers in genetics and/or use visiting lecturers to provide up-to-date knowledge in genetics and genomics, the main subject of the programme.

8. The number of students simultaneously attending the practical training should be optimized relative to the size of facilities and number of teaching staff at the practical course; the courses in genetics should include a wider portfolio of hands-on methods.

9. Teaching and following safety issues in molecular biology and genetic laboratories should be incorporated and implemented into the programme.

10. The performance of BSc thesis research should be better prepared, organized and monitored in regard to the actual laboratories chosen by students or agreed by the University for training.

11. Study committee should be proactive and enhance the availability of the updated information about the aim and the full Study Programme content and the up-to-date basic textbooks for all subjects across the study programme.

12. Student feedback has to be collected and taken into account when re-shaping the current initial study programme

III. SUMMARY

The study programme is still in the process of developing and assessment relay on the currently available data. It is a new programme and it needs some improvements.
We suggest that the faculty should take in the consideration the needs of the labor market and other needs in the region and provide more options for the students. The study programme title could be reconsidered to cover wider area. The aim should be appropriate for competencies provided by the academic bachelor level training.
The teachers were trained in the field of learning outcomes (LO) technology, although the attendance was not high. Further improvements are needed in the area of constructing measurable LOs. For all courses, LO should be defined in a measurable and consistently with the bachelor level requirements and level 6 of EQF. The content of the studies should be built in blocks starting from general to more specific, providing sufficient credits for the basic subject, like Anatomy, Basics of Chemistry, Basic Molecular Biology and Cell Biology, Higher

Mathematics, Microbiology and Virology. The content should be comparable with the similar type of studies in other countries and in Lithuania.

Some existing courses (Psychogenetic for example and Genetically Modified Organisms) are very narrow for the bachelor level and should become optional. Some redundancies (Genetic Engineering, Genetic Modified Organisms, Veterinary Genetics) in the content should be avoided.

The programme is implemented mostly by the teachers representing basic medical fields, not by the specialists in medical and veterinary genetics. The teachers should take further efforts to increase their activity towards research publications in international journals and be up to date in research. Highly competent experts from both academic (within the same university or other universities) and private institutions may be invited and engaged in both theoretical and practical implementation of the programme. Mobility of the teachers should be encouraged.

The University presented the new equipment for the Medical Biology that potentially might be used for student trainingship. The working space for the practical exercises seems to be sufficient.

The faculty is engaging all diverse resources in the research institutes and other institutions for the provision of the study programme. Students have access to the online international databases, and should be encouraged to use them more often.

The flexibility of teachers and their support to students is visible. The learning is mostly concerning the current and past achievements in the field, not preparing for the future developments: the learning is based on the experiences in small surroundings. Because the field is growing very quick, students should gain skills to use the newest technologies, by using the modern literature resources, by increasing mobility in order to speed up their knowledge and skills about the new technologies.

During the laboratory and practical trainings teachers are working with a groups of 13-14 students, and in some laboratory work with groups of 4-5 students. Laboratory and practical classes with several students might not be completely effective according to expected learning outcomes.

The learning resources could be improved by providing internationally acknowledged basic textbooks for all major subjects as the basic learning material.

Students at the study programme are keen, enthusiastic and proactive. Students' mobility is promoted by the students 'organization, not by the University. Professional English courses and scientific writing should be provided. The internships are not organized by the university or faculty and the procedure for organizing internships should be further developed. The students individually and randomly try to find a place for internship. Likewise, the role of career centre in

the career planning is not significant. Safety regulations and implementation during the courses should be assured.

The management procedures are well established, modernized in the last few years, and quality assurance oriented. Since the programme is still developing even more attention should be paid to the student performance evaluation and students' evaluation of the programme and labor market needs.

V. GENERAL ASSESSMENT

The study programme *Medical and veterinary genetics* (state code – 612C43001) at Lithuanian University of Health Sciences is given positive evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	2
2.	Curriculum design	2
3.	Staff	3
4.	Material resources	2
5.	Study process and assessment (student admission, study process student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	3
	Total:	**15**

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;

2 (satisfactory) - meets the established minimum requirements, needs improvement;

3 (good) - the field develops systematically, has distinctive features;

4 (very good) - the field is exceptionally good.

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V. APIBENDRINAMASIS ĮVERTINIMAS

Lietuvos sveikatos mokslų universiteto studijų programa *Medicininė ir veterinarinė genetika* (valstybinis kodas –612C43001) vertinama teigiamai.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	2
2.	Programos sandara	2
3.	Personalas	3
4.	Materialieji ištekliai	2
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	**15**

* 1 - Nepatenkinamai (yra esminių trūkumų, kuriuos būtina pašalinti)

2 - Patenkinamai (tenkina minimalius reikalavimus, reikia tobulinti)

3 - Gerai (sistemiškai plėtojama sritis, turi savitų bruožų)

4 - Labai gerai (sritis yra išskirtinė)

IV. SANTRAUKA

Studijų programa vis dar yra formavimosi procese ir vertinimas remiasi šiuo metu turima informacija. Tai nauja programa, todėl būtina atlikti kai kuriuos patobulinimus.

Siūlome fakultetui atsižvelgti į darbo rinkos ir kitus regiono poreikius ir suteikti daugiau galimybių studentams. Studijų programos pavadinimas galėtų būti persvarstytas siekiant apimti platesnę sritį. Tikslas turėtų derėti su kompetencijomis, kurios suteikiamos bakalauro lygmens studijose.

Dėstytojai buvo mokomi, kaip formuluoti studijų rezultatus, nors šių kursų lankomumas nebuvo didelis. Reikėtų toliau tobulėti, siekiant formuluoti išmatuojamus studijų rezultatus. Visų dalykų numatomi studijų rezultatai turi būti išmatuojami ir turi atitikti Europos kvalifikacijų sąrangos (EKS) 6 lygio reikalavimus bakalauro laipsniui. Studijų turinys turėtų būti suskirstytas į

grupes (*blocks*), pradedant bendraisiais dalykais ir einant prie specialiųjų, suteikiant pakankamai kreditų pagrindiniams dalykams, pavyzdžiui, anatomijai, bendrajai chemijai, molekulinės biologijos ir ląstelių biologijos pagrindams, matematikai, mikrobiologijai ir virusologijai. Turinys turi būti palygintinas su panašios rūšies studijų Lietuvoje ir kitose šalyse turiniu.

Kai kurių šiuo metu dėstomų dalykų (pvz., psichogenetikos ir genetiškai modifikuotų organizmų) turinys yra per siauras bakalauro studijoms, tad šie dalykai turėtų būti pasirenkamieji. Reikėtų vengti kai kurių dalykų (genų inžinerijos, genetiškai modifikuotų organizmų, veterinarinės genetikos) turinio dubliavimosi.

Šią programą daugiausiai įgyvendina ne medicininės ir veterinarinės genetikos, o pagrindinių medicinos krypčių specialistai. Dėstytojai turėtų stengtis didinti savo publikacijų tarptautiniuose žurnaluose skaičių ir neatsilikti nuo pažangos mokslinių tyrimų srityje. Būtų galima pasikviesti labai kompetentingų specialistų tiek iš mokslo (to paties ar kitų universitetų) tiek iš privačių institucijų ir teorinei, ir praktinei šios programos daliai įgyvendinti. Reikėtų skatinti dėstytojų judumą.

Universitetas padovanojo Medicinos biologijos *programai* naują įrangą, kurią būtų galima panaudoti studentų mokymo tikslais. Atrodo, kad praktiniams užsiėmimams skirtos vietos pakanka.

Įgyvendindamas šią programą fakultetas naudojasi įvairiausiais mokslinių institutų ir kitų institucijų ištekliais. Studentai turi galimybę naudotis tarptautinėmis duomenų bazėmis; reikėtų paskatinti juos dažniau jomis naudotis.

Dėstytojų lankstumas ir pagalba studentams akivaizdi. Mokymas daugiausia pagrįstas dabartiniais ir ankstesniais pasiekimais šioje srityje, studentai nerengiami būsimiems pokyčiams: mokymas pagrįstas patirtimi mažoje aplinkoje. Kadangi ši kryptis sparčiai vystosi, studentai turėtų įgyti žinių apie naujausias technologijas ir įgūdžių jomis naudotis, o tam tikslui reikėtų naudotis naujausiais literatūros šaltiniais ir didinti judumą.

Per laboratorinius ir praktinius užsiėmimus dėstytojai dirba su 13–14 studentų grupėmis, kai kurie laboratoriniai užsiėmimai vyksta 4-5 studentų grupėse. Laboratoriniai ir praktiniai užsiėmimai su keliais studentais gali būti nelabai veiksmingi siekiant numatomų studijų rezultatų.

Metodiniai ištekliai galėtų būti geresni; tam reikia, kad pagrindinę metodinę medžiagą sudarytų tarptautiniu mastu pripažinti visų pagrindinių dalykų vadovėliai.

Šios studijų programos studentai yra aktyvūs, entuziastingi ir iniciatyvūs. Studentų judumą skatina ne universitetas, o studentų organizacija. Reikėtų organizuoti profesinės anglų kalbos ir mokslinių darbų rašymo kursus. Praktikos nėra organizuojamos universiteto ar fakulteto, reikėtų toliau tobulinti praktikų organizavimo tvarką. Studentai individualiai ir atsitiktinai ieškosi

praktikų vietų. Karjeros centro vaidmuo planuojant karjerą tai pat nėra žymus Reikėtų parengti saugumo reikalavimus ir užtikrinti jų laikymąsi studijų dalykų metu.

Vadybos procedūros tinkamos, per pastaruosius keletą metų atnaujintos, orientuotos į kokybės užtikrinimą. Kadangi programa vis dar tobulinama, dar daugiau dėmesio reikėtų skirti studentų vertinimui, studentų grįžtamajam ryšiui apie programą ir darbo rinkos poreikiams.

III. REKOMENDACIJOS

1. Reikia išplėsti programos tikslą ir numatomus studijų rezultatus, kad jie atitiktų tai, ko tikimasi iš bakalauro lygmens programos; programa turėtų būti dar labiau išplėsta tam, kad atitiktų darbo rinkos poreikius ir užtikrintų daugiau galimybių studentams; be to, programą reikėtų išplėsti siekiant suteikti platesnį bakalauro lygmens išsilavinimą biomedicinos, molekulinės biologijos ar tik biologijos srityje.

2. Numatomi studijų rezultatai turėtų būti išmatuotini ir palygintini su tarptautiniais bakalauro laipsnio reikalavimais, be to, jie turi geriau atsispindėti ir veikloje, ir vertinimo metoduose; programos absolventai turi pasiekti tokį pasirengimo lygį, kad galėtų konkuruoti dėl patekimo į nacionalines bei tarptautines šios krypties magistrantūros programas.

3. Šios studijų programos sandarą reikėtų peržiūrėti; studijų turinio pagrindą turėtų sudaryti bendrieji ir baziniai akademiniai gyvybės mokslų, biomedicinos, genetikos ir molekulinės biologijos studijų dalykai; programoje yra specifinių ir siauro pobūdžio studijų dalykų, kuriuos būtų galima siūlyti kaip pasirenkamuosius dalykus.

4. Rekomenduojama padidinti šios bakalauro programos trukmę iki 4 metų, kaip įprasta pagal Lietuvos aukštojo mokslo sistemą.

5. Kiekvieno dalyko planas ir dėstymo trukmė turi atitikti jo turinį ir suteikiamos informacijos kiekį; reikia vengti dubliavimosi.

6. Šios studijų programos kryptis – genetika – yra labai sparčiai besivystanti mokslo šaka, todėl dėstytojus ir studentus reikėtų labiau skatinti pasinaudoti išvykimo ir atvykimo galimybėmis (įskaitant judumą), kad jie neatsiliktų nuo naujausių technologijų ir susipažintų su naujausių mokslinių tyrimų rezultatais.

7. Šiai programai dėstyti reikėtų pasitelkti daugiau genetikos daktaro laipsnį turinčių dėstytojų ir (arba) pasikviesti atvykstančiųjų lektorių, kurie suteiktų naujausių genetikos ir genomikos – pagrindinių šios programos dalykų – žinių.

8. Reikėtų pasirinkti optimalų vienu metu praktinius užsiėmimus lankančių studentų skaičių, atitinkantį turimas priemones ir praktinio kurso dėstytojų skaičių; dėstant genetikos kursą reikėtų įtraukti daugiau ir įvairesnių praktinių metodų.

9. Į programą reikėtų įtraukti saugos reikalavimus dirbant molekulinės biologijos ir genetikos laboratorijose ir jų laikytis.

10. Reikėtų geriau pasirengti studentų bakalauro baigiamųjų darbų tyrimų atlikimui. Šie tyrimai turėtų būti geriau organizuojami ir stebimi turint omenyje pačių studentų pasirinktas arba universiteto patvirtintas laboratorijas.

11. Studijų komitetas turėtų būti iniciatyvus ir didinti naujausios informacijos apie studijų programos tikslą ir visą jos turinį bei pagrindinius naujausius visų šios studijų programos dalykų vadovėlius prieinamumą.

12. Reikia siekti studentų grįžtamojo ryšio ir atsižvelgti į jį keičiant dabartinę (pirminę) programą.

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