



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

**VILNIAUS UNIVERSITETO  
STUDIJŲ PROGRAMOS *MEDICINOS GENETIKA*  
(621B93001)  
VERTINIMO IŠVADOS**

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**EVALUATION REPORT  
OF *MEDICAL GENETICS* (621B93001)  
STUDY PROGRAMME  
AT VILNIUS UNIVERSITY**

Grupės vadovas: Prof. dr. Aleksandar Jovanovic  
Team leader:

Grupės nariai: Prof. dr. Brigitte A. Volk-Zeiher  
Team members:  
Prof. dr. Indrikis Muiznieks  
Prof. dr. Jozef Kobos  
Prof. dr. Maris Laan  
Dr. Jonas Bartlingas  
Delia Gologan

Išvados parengtos anglų kalba  
Report language - English

## DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	Medicinos genetika
Valstybinis kodas	621B93001
Studijų sritis	Biomedicinos mokslai
Studijų kryptis	Medicina ir sveikata
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Antroji
Studijų forma (trukmė metais)	Nuolatinė (2)
Studijų programos apimtis kreditais	120
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Medicinos genetikos magistras
Studijų programos įregistravimo data	2011-06-10

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## INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	Medical Genetics
State code	621B93001
Study area	Biomedical Sciences
Study field	Medicine and Health
Kind of the study programme	University Studies
Study Cycle	Second
Study mode (length in years)	Full-time (2)
Volume of the study programme in credits	120
Degree and (or) professional qualifications awarded	Master of Medical Genetics
Date of registration of the study programme	10/06/2011

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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 Master's study programme in Medical Genetics at the Medical Faculty at Vilnius University 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)

The evaluation expert team consists of:

1. Prof. dr. Aleksandar Jovanovic, Director of QA Centre of the Medical Faculty in K.Mitrovica, University of Pristina/K.Mitrovica, Academic expert for Higher Education Reforms, Serbia
2. Prof. dr med. Józef Kobos, Department and Chair of Pathology, Head of the Department of Pathology of the Age of Development and Head of the Laboratory of Pathology, Institute of Pediatrics, Medical University of Lodz, Poland
3. Dr. Jonas Bartlingas, Head of Health Care Resources Management Division, Ministry of Health, Lithuania.
4. Prof. dr. Brigitte A. Volk-Zeiher, Research Director, Head of the Research Management of the Faculty of Medicine, University Medical Center, Faculty of Medicine, Germany
5. Prof. dr. Indrikis Muiznieks, Pro-Rector for Research, University of Latvia, Head of the Department of Plant Physiology and Microbiology, Faculty of Biology, Latvia
6. Prof. dr. Maris Laan, Professor in Human Molecular Genetics, Institute of Molecular and Cell Biology (IMCB), University of Tartu, Estonia
7. Delia Gologan, student representative, Romania

## II. PROGRAMME ANALYSIS

The MSc study programme in Medical Genetics is a multidisciplinary 2-years training programme accredited for implementation only in year 2011. The aim to train medical geneticists is consistent with the requirements laid down in the European Directive 2005/36/EC and WHO global strategy. The study programme follows the principles and recommendations in training provide by European Society of Human Genetics (ESHG).

### ***1. Programme aims and learning outcomes***

The aims of the Study Programme stated in the SER p.7-8 are clearly and well defined, and are convincingly based on academic and professional requirements in the rapidly developing field of

biomedicine. The programme equivocally states the goals to prepare young researchers with a broad academic education in medical laboratory genetics and provide the skills for working in the field of biomedical research and in the health care system institutions together with healthcare professionals. The programme has an emphasis to train the student towards independent research work, evidence-based problem solving in laboratory genetics and continuous professional development. With the completion of the described master-level studies in Medical Genetics, graduates are expected to be capable (e.g. have knowledge and skills) for independent scientific work and service in diagnostic laboratories. The learning outcomes and competences of the study programme (Table 2.1, pp.9-10 of SER) are provided in detail and precisely, are well defined and fully consistent with the requirements of MSc level studies in biomedicine. The name of the Programme, its learning outcomes, content and qualifications provided are compatible with each other. Study programme is built up logically and the 8 sub-topics are mutually integrated. The listed learning outcomes from each sub-topic represent a combination of training in basic theoretical knowledge, practical skills, learning to analyse and interpret data in biomedical research and practice, as well as in problem-solving and wider scope in the field. The content of the MSc studies programme in Medical Genetics corresponds to the qualification requirements set out in European and National Qualification Framework and orders of the Ministry of Education and Science, and the Minister of Health of the Republic of Lithuania. The sub-topics (Table 2.1, p.10) specifically address the training in professional laboratory practice and carrying out the scientific research and application of the scientific principles in biomedicine.

In the long term, we would suggest that the programme should be expanding the scope and outcomes of training, reflecting, for example, on criteria of the upcoming recommendation of the European Society of Human Genetics (UEMS 2009/15), e.g. genetics of late-onset common disease such as cancer and cardiovascular disease, pharmacogenetics. The strategy for increasing the number of students, including the Life Long Learning activities should be undertaken. Also the programme should reflect more to the needs of society, both public and private sector (academic and private R&D laboratories, clinical molecular diagnostics laboratories by the hospitals, pharmaceutical companies, public and private fertility clinics, forensic laboratories etc).

## **2. Curriculum design**

The curriculum design of the MSc study programme in Medical Genetics of Vilnius University corresponds to the Law of Higher Education and Research of the Republic of Lithuania (2009-04-30, No.XI-242), the Law on the Regulations of the Requirements for the Master's study

Programmes (2010-06-03, No. V-826), Vilnius University Study programme requirements approved by Senate Commission (resolution 2012-06-21, No. SK-2012-12-4) and the EU 2005/36 directive. Therefore, the Study Programme meets the legal requirements. The summary scope of the two-year study programme is 120 credits. The credits are distributed evenly among the semesters, with 30 ECTS workload distributed to every semester. The first year of the study programme is devoted to education in fundamental basic knowledge in the field, and in the second year the focus is shifted to research-based training ending with preparation of MSc thesis resulting from independent, supervised research. The study subjects (modules) (Table 2.2, pp.13-14 of SER) are distributed evenly and in accordance with the legislation. The workload of the student comprises 3200 hours. Auditorium's work (contact hours) cover 70% of total hourly time and include lectures, seminars and laboratory practice. Self-study covers up to 30% of learning time of each study module. Each study module has a coordinator responsible for the teaching quality of the discipline. There is also focus to direct towards practical work from the 1st semester onward.

In general, learning outcomes (LO) of the courses are defined according to 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 fulfilment can be measured on the basis of the assessment (examination results, defence of MSc thesis). The LOs of the programme and its courses are in accordance with Level 7 of LTQF descriptors and EQF, but some outcomes could be adapted further, e.g. the LO-s related to social and personal development and teamwork should be evaluated. The learning methodology includes the modern pedagogical approaches such as student centered learning and problem – based learning approach but it could be more connected to the expected learning outcomes and the needs of the students.

Although, the programme represents a positive new programme, it is still under development and would benefit from further improvements. Since the students of the programme come from the different study programmes and have different background (Biology, Biochemistry, Molecular Biology, Biotechnology, Biophysics etc), it is recommended that the faculty organizes bridging courses for the selected students who may have difficulties coping with others who already had familiarize themselves with the part of the Programme context during their previous studies. The explicit need for such courses was highlighted by the students (site-visit, Nov 8th, 2013). Relevant elective courses portfolio, which is currently missing, should be introduced and expanded, using the courses offered by the medical faculty (for example Anatomy and Physiology), faculty of Natural Sciences (biotechnology and genetics) and faculty of Mathematics (statistics and bioinformatics) according to guidance of European Union. A particular and comprehensive course in Bioethics should be introduced.

It is recommended that the curriculum have more emphasis in training in various subjects in contemporary medical genetics, such as Epigenetics, Genomics, etc. The ratio between lecturers and independent work in some subjects (for example 'Laboratory Diagnostics of Inborn Errors of Metabolism' and 'Essential Genetic Counselling' etc) should be reconsidered in the favour of more contact hours. The portfolio of research topics and training laboratories for MSc theses studies should be diversified, as currently there is a bias toward research topics in cytogenetics (information from meeting with students, site-visit, Nov 8th, 2013).

The graduates of the study programme are trained to be involved for the performance and interpretation of routine molecular diagnostic testing implemented at the clinical settings. In order to involve the graduates of the programme into the current routine of clinical diagnostics, an approved process (according to Lithuanian current law requirements) is required to precisely describe the responsibilities of all involved professionals (medical doctors, clinical and medical geneticists) participating in the final diagnosis of the patient.

### ***3. Staff***

This programme engages academic staff of 23 teachers including 8 professors, 4 associate professors, 8 lectures and 3 assistant lectures. It was difficult to assess whether the workload does not exceed the legal limit, but faculty staff did not complain about it. Professors and associate professor make 52.5% of the teaching staff, which is above the legal requirements (40%). 86.95% of the teachers have a scientific PhD-degree which exceeds the legal requirement for the master studies. In conclusion, the staff has relevant qualifications to ensure learning outcomes. The number of teachers (23) involved in this programme is adequate for the number of entering students (in total 8 students at their 1st and 6 students at their 2nd year of studies; data from site-visit, Nov 8th, 2013). Teacher turn-over cannot be properly evaluated yet, as the study programme is young (formally from 2011, but practically starting in 2012 due to only a single student entering the programme in 2011), the average age of the lecturers is 46.2 years. The lecturers demonstrate mobility and scientific exchange activities, as well as active participation in the conferences. A significant number of them participated in national and international projects and societies.

One should notice that some of the staff members demonstrating moderate publication activity in international peer-reviewed journals. Across all the teachers there are 51 ISI WoS article during the past 5 years. In average, this is 2.2 publications/researcher during 5 years, but the distribution of ISI WoS publications among involved staff is quite unequal. International visiting lecturers should be invited to expand the scope of the studies. Educational courses for

teachers should be better and more often organized. Teachers should be more interested and involved into the mobility programmes.

In summary, the University and the faculty provide the adequate condition for the professional development for the staff involved in the study programme. Generally, the teachers are up to date with the latest scientific achievements in the respective areas.

#### ***4. Facilities and learning resources***

The Medical Genetics Study Programme is mainly implemented in quite high number of facilities: Faculty of Medicine at Vilnius University; Vilnius University Hospital Santariškių Clinics; Institutes of Biotechnology of Vilnius University (Faculty of Natural Sciences), Faculty of Chemistry. Practical training is taking place in well-equipped cytogenetic, molecular genetics and biochemical genetics laboratories. Up-to-date laboratory equipment (microscopes, HPLC; DNA analysis instrumentation etc) for the practical training ensure the complete provision of the study programme. The coordinating Centre has recently opened new spacious laboratories for experimental and analytical training of students, including sufficient individual laboratory space for all enrolled students, set-up of automated cytogenetic analysis stations along with high-quality microscopes and dedicated computer class for data analysis. Students are also introduced to the cutting-edge for DNA analysis techniques such as next-generation sequencing (Illumina HiSeq™). However, the number of available laboratories for the practical training and the diversity of research topics for the preparation MSc thesis might be further increased. The main library for learning resources is the library of the Faculty of Medicine. The libraries are equipped with the electronic search systems, familiar to the students and academic staff. Library has over 60 000 publications with new publications acquired every year. The online access to scientific journals and databases is ensured. These could be doubled by the development of online learning instruments and e-platforms that could facilitate inviting international experts as guest-lectures or to sustain online modules.

Dormitories have reading rooms, and every room has internet access. Computer access (along with internet service) to students is provided in the specialized facilities at the Faculty of Medicine as well as in a dedicated room at the coordinating centre.

#### ***5. Study process and student assessment***

The adequate rules for the admission of the students are enacted by the Lithuanian Higher Education Institutions Association, and they are publicly announced on the VU site. Mandatory



basic courses at the BSc level and demonstrated basic educational background in the field are relevant and fit the requirements for the MSc programme. The detailed information about the aims and objectives of a subject studied is provided in the Study programme plan published at the website of the VU Faculty of Medicine and DHMG, as well as by the administration of VU FM and DHMG. The schedule of classes and exercises is publicly available. The examinations are scheduled in advance and publicly announced via University web-site.

The principles of assessment of students' performance are set out by VU Study Provisions, VU procedure for the assessment of study results, resolutions of the Council of VU Faculty of Medicine and are described in the course description of each subject. Students are informed directly about the results of the assessment of their study results and they may find them out in the information system of VU. However, the evaluation and assessment methodology could be more consistent with the intended learning outcomes. The most of the study subjects are evaluated by applying the principle of an accumulative score throughout the semester. The requirements for the preparation of final MSc theses and assessment policy are published on the DHMG website.

The student dropout has not been documented yet as the programme only started 2011 and 6 (in 2012) + 8 (2013) students have been enrolled. More could be done in this sense as well as developing a tracking the graduates system.

At the university level, students are encouraged to participate in the mobility in the framework of the MSc thesis. Outgoing and incoming student mobility via Erasmus Programme is developing and is supported by the VU International Relations Office; however, the extent of the students' mobility is still limited (meeting with students, site-visit, Nov 8th, 2013) and the mobility opportunities and offers should be diversified. Participation of the second year students in the international courses should be further promoted and developed.

Student scholarship and support granting is regulated by the university legislature. Students can be granted *state loans* (from state funds) and *state supported loans* (from credit institution funds). Generally, there are three types of additional scholarships available. Students may be granted social scholarships, scholarships for academic achievements or a one-time scholarship for academic achievements.

It is important to stress that the study process is well organized in the manner of traditional academic studies. The students are motivated and interested in the subject. Half of students gain the knowledge about the academic prospects and do want to pursue further academic career in PhD studies (Site visit, Nov 8<sup>th</sup>, 2013). However, it is also advised that there should be more opportunities to create team work skills for students, necessary for both academic and non-academic career paths.

It is advised that the daily and weekly schedule of students in terms of physical location of provided lectures, practical research and seminars has to be harmonized and organized efficiently, avoiding more than 8 hours activities in the day especially including the travelling between the campuses (meeting with students, site-visit, Nov 8th, 2013).

Graduates of the MSc study programme are expected to be employed at the laboratories of public institutions, hospitals, clinics (private and public). Vilnius University Career Centre provides help for students in solving career problems, making independent career-related decisions and successfully realising themselves in a chosen career field. This could be supported by developing the students' services as the office for career counselling and professional orientation.

## ***6. Programme management***

The overall responsibilities for the study programme administration and the quality assurance is well placed, and the procedures are adequate. Still, number of things could be done, especially in the area of the internal quality assurance of the programme. Involving the more academic community representatives in monitoring, evaluation and development of the programme, making the evaluation of the disciplines more transparent, the self evaluation process set at regular (e.g. yearly or half year) intervals are some of the elements of improvement that could be recommended. The main element in the management of the study programme is the Study Committee of the Medical Genetics MSc study programme of VU FM, which is accountable to the Faculty Council. The Study Committee meets once per academic year and coordinates with Vice-Dean of the Faculty and student representatives. It analyzes the information on the progress of the programme and feedback from students and teaching quality.

The process of the study programme administration and quality assurance is laid down in the VU Study Regulation. The main stakeholder in quality assessment is the VU Quality Management Centre. The University implements various procedures for determination of the inner study quality: student result assessment programme, teacher pedagogical qualification development system, and the quite elaborate system of the quality promotion. Students are participating in the process of quality assurance via their representatives at VU Senate and the Rector's Office, Faculty Councils and Commissions. The existing inner quality assurance procedures are expected to be effective.

However, the students should be more involved in a study programme improvement and feedback process, including ECTS distribution according to their own workload. Currently, there is no student representative in the Study Committee of the Medical Genetics MSc study programme of VU FM and the majority of students had not seen the SER (meeting with students,

site-visit, Nov 8th, 2013). It means that students are not adequately involved in the process of planning and evaluating of the learning outcomes and study programme management.

### III. RECOMMENDATIONS

1. The programme should be expanding the scope and outcomes. It should switched from narrow specialist training (in genetic counselling) for the hospital setting to the training of researchers for broader biomedical field as stated in the aims of the programme. This requires knowledge in human genetics as well as developing the training experiences in the hospital context.
2. The strategy for increasing the number of students, including Life Long Learning activities should be undertaken. The programme should reflect more the needs of society, both public and private sector.
3. It is recommended that the curriculum of the programme include (i) bridging courses for the students coming from different backgrounds; (ii) elective courses portfolio offered by the Medical faculty, faculties of Natural Sciences and of Mathematics; (iii) expanded portfolio of modern medical genetic subjects, as Epigenetics, Genomics, etc. (iv) a comprehensive course in Bioethics;
4. The ratio between lecturers and independent work in some subjects (for example 'Laboratory Diagnostics of Inborn Errors of Metabolism' and 'Essential Genetic Counselling' etc) should be reconsidered in the favour of more contact hours.
5. As the graduates of the study programme are trained to be involved for the performance and interpretation of routine molecular diagnostic testing implemented at the clinical settings, it is necessary to reach an approved process and standards (according to Lithuanian current law requirements) precisely describing the responsibility of the graduates of this study programme in participating in the final diagnosis of the patient.
6. The portfolio of research topics and training laboratories for MSc theses studies should be diversified.
7. Research activity of all teaching staff and more active scientific publishing in international peer-reviewed journals has to be promoted.
8. Mobility of the students of this programme has to be stimulated, through the participation of the students in the international courses and further development of the mobility opportunities and offers.

9. The daily schedule of students needs to be harmonized and organized efficiently to avoid more than 8 hours activities including the travelling between the campuses.
10. Students Career Center services (for example, monitoring of the graduates' careers and the career counselling) should be further developed.
11. The students should be more involved in study programme improvement and feedback process.

#### IV. SUMMARY

Master-level programme in Medical Genetics at Vilnius University represents a new and positively developing study programme. The programme equivocally states the goals to prepare young researchers with a broad academic education in medical laboratory genetics and provide the skills for working in the field of biomedical research and in healthcare institutions. The scope of the programme is in accordance with the legal requirements and the workload is distributed evenly throughout the semesters. In the long term, we would suggest that the programme should be expanding the scope and outcomes, reflecting for example, on criteria of the upcoming recommendation of the European Society of Human Genetics. The programme should reflect more to the needs of society, both public and private sector. The strategy for increasing the number of students, including the Life Long Learning activities should be undertaken. Although students' research is included in the programme with the first days of studies the number of available laboratories for the practical training and the diversity of research topics for the preparation MSc thesis might be further increased.

The name of the programme and learning outcomes (LO) are in accordance with each other. The learning outcomes of the programme and its courses are in accordance with Level 7 of LTQF descriptors and EQF, but some outcomes could be adapted further, e.g. the LO-s related to, the social and personal development and team-work learning should be evaluated. Problem based learning is introduced, but could be more connected to the expected LO-s and the needs of the students. The curriculum of the programme should include the bridging courses for the students coming from different backgrounds and relevant portfolio of elective courses. The ratio between lecturers and independent work in some subjects should be reconsidered in the favour of more contact hours. The evaluation and assessment methodology should be more consistent with the intended LOs.

The teachers are active researchers, with the significant number of publications at national and international level, however the distribution of ISI WoS publications among involved staff is quite unequal. The lecturers demonstrate mobility and scientific exchange activities, as well as

active participation in the conferences. A significant number of them participated in national and international projects and societies. Nevertheless, teachers should be more interested and involved into the mobility programmes. Educational courses for teachers should be better and more often organized.

It is important to stress that the graduates of the study programme are trained to be involved for the performance and interpretation of routine molecular diagnostic testing implemented at the clinical settings. In order to involve the graduates of the programme into the current routine of clinical diagnostics, an approved process (according to Lithuanian current law requirements) is required to precisely describe the responsibilities of all involved professionals (medical doctors, clinical and medical geneticists) participating in the final diagnosis of the patient.

The study process is well organized and the students are motivated and interested in the subject. Half of students gain the knowledge about the academic prospects and do want to pursue further academic career in PhD studies. The study process would gain from more efficient course schedule in relation to their physical location, more active student feedback system and promotion of team-work skills as well as student mobility (e.g. participation in international courses). International visiting lecturers should be invited to expand the scope of the studies.

The overall responsibilities for the study programme administration and the quality assurance is well placed, and the procedures are adequate. The process of the study programme administration and quality assurance is laid down in the VU Study Regulation. The main stakeholder in quality assessment is the VU Quality Management Centre. However, the students should be more involved in a study programme improvement and feedback process, including ECTS distribution according to their own workload.

## V. GENERAL ASSESSMENT

The study programme *Medical genetics* (state code – 621B93001) at Vilnius University 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	3
2.	Curriculum design	3
3.	Staff	3
4.	Material resources	4
5.	Study process and assessment (student admission, study process student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	3
	<b>Total:</b>	<b>19</b>

\*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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Dr. Jonas Bartlingas

Delia Gologan

<...>

## V. APIBENDRINAMASIS ĮVERTINIMAS

Vilniaus universiteto studijų programa *Medicinos genetika* (valstybinis kodas – 621B93001) vertinama teigiamai.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	3
2.	Programos sandara	3
3.	Personalas	3
4.	Materialieji ištekliai	4
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	<b>Iš viso:</b>	<b>19</b>

\* 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

Vilniaus universitete įgyvendinama Medicinos genetikos magistrantūros programa yra nauja studijų programa, kuri sėkmingai tobulinama. Šios programos tikslas formuluojamas nevienprasmiai – parengti jaunus tyrėjus, turinčius platų akademinį išsilavinimą medicininės laboratorinės genetikos srityje, taip pat suteikti įgūdžių, leidžiančių dirbti biomedicininė tyrimų srityje ir sveikatos priežiūros įstaigose. Šios programos apimtis atitinka teisės aktų reikalavimus, darbo krūvis semestruose paskirstytas tolygiai. Siūlytume, kad ilgalaikėje perspektyvoje būtų plečiama programos apimtis ir didinamas rezultatų skaičius, atsižvelgiant, pavyzdžiui, į Europos žmogaus genetikos draugijos būsimą rekomendaciją. Programoje turėtų būti labiau atsižvelgta į visuomenės, tiek viešojo, tiek privataus sektoriaus, poreikius. Reikėtų parengti strategiją, kaip didinti studentų skaičių, įskaitant mokymąsi visą gyvenimą. Nors programoje numatyta, kad

mokslinius tyrimus studentai atlieka nuo pirmųjų studijų dienų, tačiau praktiniam mokymui skirtų laboratorijų skaičių reikėtų toliau didinti, taip pat siūlyti įvairesnes magistrantūros baigiamųjų darbų temas.

Programos pavadinimas ir numatomi studijų rezultatai dera tarpusavyje. Programos ir jos dalykų studijų rezultatai atitinka LTKS ir EKS 7 lygio aprašus, bet kai kuriuos rezultatus reikėtų toliau derinti, pvz., reikėtų įvertinti su socialiniu ir asmeniniu tobulėjimu bei grupiniu darbu susijusius studijų rezultatus. Taikomas probleminis mokymas, bet jis turėtų būti labiau susietas su numatomais studijų rezultatais ir studentų poreikiais. Į programos sandarą reikėtų įtraukti *išlyginamuosius (papildomus)* dalykus kitą (*ne genetikos*) išsilavinimą turintiems studentams, taip pat atitinkamą pasirenkamųjų dalykų rinkinį. Reikėtų persvarstyti kai kurių dalykų dėstymui ir savarankiškam darbui skirtą laiko santykį ir nustatyti daugiau kontaktinių valandų. Vertinimo metodai turėtų labiau derėti su numatomais studijų rezultatais.

Dėstytojai atlieka daug mokslinių tyrimų, yra paskelbę nemažai straipsnių šalyje ir užsienyje, tačiau atskirų darbuotojų publikacijų „ISI Web of Science“ leidiniuose skaičius labai nevienodas. Dėstytojai yra judūs, dalyvauja mokslinių mainų programose, konferencijose. Daugelis dalyvavo nacionaliniuose ir tarptautiniuose projektuose ir yra draugijų nariai. Vis dėlto dėstytojai turėtų daugiau domėtis judumo programomis ir jose dalyvauti. Dėstytojams skirti mokymo kursai turėtų būti organizuojami dažniau ir geriau.

Svarbu pažymėti, kad šios studijų programos absolventai yra išmokyti atlikti ir aiškinti įprastus molekulinius tyrimus diagnozei klinikinėmis sąlygomis nustatyti. Norint įtraukti šios programos absolventus į įprastinės klinikinės diagnostikos veiklą, reikalinga patvirtinta procedūra (pagal dabartinius teisės aktų reikalavimus) – reikia tiksliai aprašyti visų specialistų (gydytojų, klinikinių ir medicinos genetikų), dalyvaujančių nustatant galutinę ligonio diagnozę, atsakomybę.

Studijų procesas gerai organizuotas, studentai motyvuoti ir domisi studijuojamu dalyku. Pusė studentų žino apie akademines perspektyvas ir nori toliau siekti mokslinės karjeros ir studijuoti doktorantūroje. Studijų procesas būtų veiksmingesnis, jei studijų tvarkaraštis būtų sudarytas efektyviau, atsižvelgiant į vietą, kurioje studentas turi būti, stiprinamas studentų grįžtamasis ryšys, skatinami grupinio darbo įgūdžiai ir studentų judumas (pvz., dalyvavimas tarptautiniuose kursuose). Siekiant išplėsti studijų apimtį, reikėtų kviesti tarptautinius lektorius.

Bendra atsakomybė už studijų programos administravimą ir kokybės užtikrinimą paskirstyta gerai, procedūros tinkamos. Studijų programos administravimo ir kokybės užtikrinimo procedūra nustatyta VU studijų nuostatuose. Pagrindinis kokybės vertinimo srities socialinis dalininkas yra VU Kokybės vadybos centras. Tačiau studentai turėtų daugiau dalyvauti studijų programos



tobulinimo ir grįžtamojo ryšio procese, įskaitant ECTS kreditų paskirstymą atsižvelgiant į studentų darbo krūvį.

### III. REKOMENDACIJOS

1. Reikėtų išplėsti programos apimtį ir rezultatus. Nuo siauros srities specialistų (genetinio konsultavimo) rengimo ligoninėms reikėtų pereiti prie platesnės biomedicinos mokslų srities tyrėjų rengimo, kaip nurodyta programos tiksluose. Tam reikia žinių iš žmogaus genetikos srities ir praktinio mokymo ligoninėse patirties.
2. Reikėtų parengti strategiją, kaip didinti studentų skaičių, įskaitant mokymąsi visą gyvenimą. Ši programa turėtų labiau atitikti visuomenės poreikius, turint omenyje tiek viešąjį, tiek privatų sektorių.
3. Rekomenduojama į programos sandarą įtraukti i) išlyginamuosius dalykus (*bridging courses*) kitą (*ne genetikos*) išsilavinimą turintiems studentams; ii) pasirenkamųjų dalykų rinkinį, kurį siūlo medicinos, gamtos mokslų ir matematikos fakultetai; iii) išplėstinį šiuolaikinių medicinos genetikos dalykų, pavyzdžiui, epigenetikos, genomikos ir t. t., rinkinį; iv) išsamų bioetikos kursą.
4. Reikėtų peržiūrėti kai kurių dalykų (pvz., įgimtų metabolizmo anomalijų laboratorinė diagnostika, būtinas (*essential*) genetinis konsultavimas ir t. t.) paskaitų ir studentų savarankiško darbo santykį ir nustatyti didesnę kontaktinių valandų skaičių.
5. Kadangi šios studijų programos absolventai yra mokomi atlikti ir aiškinti įprastinius molekulinės diagnostikos tyrimus klinikinėmis sąlygomis, būtina turėti patvirtintą procedūrą ir standartus (pagal dabartinių Lietuvos teisės aktų reikalavimus), kuriuose tiksliai aprašyta šios studijų programos absolventų atsakomybė dalyvaujant nustatant galutinę ligonio diagnozę.
6. Reikėtų pajvairinti mokslinių tyrimų temų rinkinį, taip pat įvairinti laboratorijas, skirtas pasirengti magistro baigiamajam darbui.
7. Reikia skatinti, kad visi dėstytojai dalyvautų mokslo tiriamojoje veikloje ir aktyviau publikuotų mokslinius straipsnius tarptautiniuose recenzuojamuose žurnaluose.
8. Reikia skatinti šios programos studentų judumą, raginti juos dalyvauti tarptautiniuose kursuose ir toliau didinti jų judumo galimybes.
9. Reikia suderinti kasdieninį studentų tvarkaraštį; jis turi būti sudarytas taip, kad veikla neviršytų 8 valandų, įskaitant kelionę iš vienos universiteto teritorijos (*campus*) į kitą.

10. Reikia toliau gerinti Studentų karjeros centro paslaugas (pvz., absolventų karjeros kelio stebėjimą ir konsultavimą karjeros klausimais).

11. Studentai turėtų būti labiau įtraukiami į studijų programos tobulinimo ir grįžtamojo ryšio teikimo procesus.

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