



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

VILNIAUS UNIVERSITETO
NEUROBIOLOGIJOS (621C14001)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF *NEUROBIOLOGY (621C14001)*
STUDY PROGRAMME
AT VILNIUS UNIVERSITY

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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	Neurobiologija
Valstybinis kodas	621C14001
Studijų sritis	Biomedicinos mokslai
Studijų kryptis	Biologija
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	Neurobiologijos magistras
Studijų programos įregistravimo data	2009-08-31, Nr.1-73, akredituota iki 2013-12-31

INFORMATION ON ASSESSED STUDY PROGRAMME

Name of the study programme	Neurobiology
State code	621C14001
Study area	Biomedical Sciences
Study field	Biology
Kind of the study programme	University studies
Level of studies	Second
Study mode (length in years)	Full-time (2)
Scope of the study programme in credits	120
Degree and (or) professional qualifications awarded	Master degree in Neurobiology
Date of registration of the study programme	2009-08-31, No 1-73, accredited until 2013-12-31

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I. INTRODUCTION

In 2013, the Centre for Quality Assessment in Higher Education started the procedure of evaluation of the Study Programme in Neurobiology at the Vilnius University, Lithuania, according to the Procedure for the External Evaluation and Accreditation of Study Programmes (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).

The evaluation expert team consists of:

- **Trine Johansen Meza** - Senior Scientist of the Department of Molecular Biosciences, University of Oslo, Assistant Deputy Director General, Department of Quality Assurance NOKUT;
- **Aleksandar Jovanovic** - Professor, Department of Endocrinology, Medical Faculty, University of Pristina/K. Mitrovica, Serbia, EC Academic expert, HERE project;
- **Laima Ivanovienė** – Professor, Kaunas University of Medicine, Lithuanian University of Health Sciences, Biochemistry Department, Head of Department;
- **Tonis Karki** - Associated Professor and Senior Researcher at the Department of Microbiology, University of Tartu, Faculty of Medicine;
- **Tadas Juknius** - student representative.

The Self-Evaluation Reports and the additional documents were delivered to the evaluation team in due time. At 19th of September 2013, according to procedure, the evaluation team performed a site-visit to Vilnius University and met the management, self-evaluation report writing team, teachers, students, alumni and social partners at the Master Study Programme in Neurobiology.

The Master study programme in Neurobiology is a modern, research-oriented, and well based study programme, which responds to strategic tendency of the Lithuanian Higher Education to increase scientific achievements and research results, thus improving its competitiveness, image and rankings.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The overall aims and competences of the study programme are very well defined. Competences themselves are appropriate to the Master programme level. They include team work, organization, planning, decision-making, ability to learn, understand and explain, designing, appreciating and evaluation (the The Neurobiology Self Evaluation Report, p7). They are in accordance with the Approval of the General Requirements for Master Degree Study Programmes, formulated by the Order of the Minister for Education and Science of the Republic Of Lithuania, No V-826 of 3 June 2010 and the Law on Research and Higher Education of the Republic of Lithuania (*Official Gazette*, 2009, No 54-2140), namely, training students for independent research work or any other work which requires scientific knowledge, analytical and creative abilities.

The learning outcomes on the study programme level are clearly defined, and also appropriate for the Master study level (level 7) and in accordance with the Lithuanian Qualifications Framework (as stated in Referencing the Lithuanian Qualifications Framework to the European Qualifications Framework for Lifelong Learning and the Qualifications Framework for the

European Higher Education Area NATIONAL REPORT | 2012; p.34-35). A special attention is paid to application of the theoretical knowledge in the scientific research, the practical research techniques, skills and abilities, the design evaluation of the research projects and experiments, collecting, analyzing and integrating data, presentations and discussions. They are also well graduated, involving higher cognitive categories in the Blooms taxonomy, as appropriate for the Master study level.

The name, aims, competencies and the learning outcomes of the Master study programme in Neurobiology are harmonized with each other and in accordance with Approval of the general requirements for master degree study programmes, No V-826, June 2010 and Pursuant to Articles 47.8, 48.3 and 48.7 of the Law on Research and Higher Education of the Republic of Lithuania (Official Gazette, 2009, No 57-2140).

The final thesis is based on the student's independent research and represents a creative project where the students implement their ideas, knowledge and combine it with different methodologies. The thesis is the final step in the Master Programme and represents the overall integration of the knowledge and skills in line with the learning objectives of the programme.

The needs of the labor market are integrated in the design of the aims and learning outcomes. The Study Program Committee includes two social partners who give their suggestions when in order to increase matching of the aims and outcomes to the needs of labor market. The Programme combines general understanding in neuroscience, good research and practical skills. This allows the graduates quickly adjust to the specific needs of employers. Owing to that, about 71% of the all graduates are employed according to their education (Neurobiology Self-Evaluation Report, p 14).

Programme aims and intended learning outcomes are published in the website of Vilnius University Faculty of Natural Sciences, Department of Neurobiology and biophysics (<http://www.biofizika.gf.vu.lt/lt/studijos/magistro-studijos>).

Considering the learning outcomes in research area, at the site visit to the Department of Neurobiology and Biophysics, during the meeting with the teachers, it was stated that the students research publications are evaluated both prior to Master thesis defense or prior to admission to PhD studies, depending on the time of their publication. Still, the team was offered no structured procedure for the evaluation, although students have papers published in prominent scientific journals (the Neurobiology Self-Evaluation Report and Appendix 8). According to Appendix 1 (p32-34) the evaluation of research projects and Master Thesis were completely based on oral presentation, answers to Defense Committee members' questions and evaluation by the supervisor.

During the site-visit it was emphasized by the teachers of the Study Programme that group work is given a high priority. The group work and activities are learned and developed through the group discussions and presentations, group laboratory exercises and research and collaboration with the other research institutions.

2. Curriculum design

The Master study programme is a popular and interesting study programme and a relatively new study field (site-visit meeting with the students and social partners), attracting students with different backgrounds. It is very important that the Master Study Programme does not represent the simple extension of the Bachelor-level programmes, but a specific and integrative programme responding to particular needs of the labor market and/or research areas.

Although the students (for example those coming from the study fields of humanities, such as psychology) may lack some background (site visit meeting with students) the study programme offers no bridging courses for upgrading the knowledge/skills. However, if the need arises, there is a possibility to choose additional courses during the semester, which are additionally charged.

The scope of the programme is in accordance with the level of study and more than sufficient to ensure legal requirements. By the provision of the programme, its outcomes students are trained in high quality techniques and modern scientific methodology and given up-to-date knowledge in the area.

The courses are distributed evenly, the number of courses per semester is unified and in accordance with legislature. The credits allocated per course depicted a real students' workload. The theoretical/practical subjects' ratio was enacted by the Ministry of Education, and the majority of the subjects have research work or simulations included, and the Master thesis represent the integration of the overall knowledge and skills gained during the studies. Moreover, the elective subjects meet the labor market requirements of the other related fields, such as Medicine, Agriculture, Genetics, Zoology, Botany, Informatics, Psychology and Ethics (Appendix 1). All the information about the elective courses is published and provided at the beginning of the semester. The students choose elective courses by visiting different courses prior to making decision, making their individual study plan.

In Appendix 1 (p 39-48), both courses in ethics were elective. This point was discussed in the meeting with self-evaluation team and the teachers during the site-visit. All the participants agreed that the courses in ethics in the study programme of Neurobiology should become compulsory.

By the University legislature, free subjects taken from the other study programmes are not allowed anymore on the Master level. It is allowed, however, to take up to 15 credits more than the required (120 ECTS). Still, on the site-visit meeting with students, the students of the study programme expressed their interests in wider diversity of the courses than the existing list of electives offered, for example medical courses, brain imaging, math lab, programming etc.

The majority of the courses (especially in the courses of Biopsychology, Neurochemistry, Psychophysiology, Neurobiology of Sensation and Perception, Molecular Mechanisms of Signal Transduction, Research Work Project, Master Thesis, Neuroethics, Modern Computerized Information Systems, Human Neuropsychology, Laboratory Animal Science and Methods for Brain Investigation) have well defined, diverse and elaborated learning outcomes, appropriate for the level of studies and the Master study programme requirements. In some of them (for example in Biotransport, Biophysics of neuron, Biophysics of sensory systems), however, the outcomes were limited to knowing/understanding/describing category, revealing a teacher-centered / repetitive pattern. They were in accordance neither with the range of study programme learning outcomes. At the same time the assignments in these courses are given repetitively and with no diversity, and the same goes for the assessment methodology. All learning outcomes on the level of subjects should be synchronized with the study programme learning outcomes.

During the meetings with the self-assessment group, teachers and social partners, the evaluation team asked for the reasons for differences among the courses noted above. The teachers were engaged in writing the learning outcomes of their own courses. They had a support provided by the University: Dublin descriptors were published via university intranet, along with the instructions in writing learning outcomes; also, the book in English and Lithuanian on this matter was provided. The University organized courses in writing the learning outcomes, but with a

limited number of places, so all the interested professors could not attend the courses. Finally, all the teachers had the opportunity to see and discuss the programme learning outcomes provided by the self-assessment team. Still, the conclusion was that, since the ECTS system for the course units was introduced in 2010, it is still relatively new to the teachers, and some of them do not understand it completely. The teachers expect the improvement in this area soon.

Learning methodology is in general adequate: the integration of the practical, skill based education with the theoretical content, the modernization of the curriculum, the current high quality level of teaching staff and equipment assures the fulfillment of the intended learning outcomes. Learning methodology should be even more tightly linked to the individual learning outcomes. Every learning outcome should have adequate methods of learning and assessment.

The evaluation team also found that the concept of the research based study programme, with the students trained in scientific activities from the very first day of their Master studies is an excellent way to prepare students for their future careers. The students work independently as researchers, perform their analyses and integrate the results into the Master Thesis; some students publish their results and participate in research projects. However, it was noticed (Appendix 1, p31-32) that the students perform 3 research projects within the first, second and the third semester of studies which are separately evaluated with 4, 10 and 6 ECTS credits. During the site-visit, at the meetings with the teachers and the team who wrote the self-evaluation report it was found out that all of these partial projects are actually parts of the future Master Thesis. The final Master Thesis is then again awarded with 30 credits. In the opinion of the evaluation team, the final Master Thesis is a comprehensive individual scientific project and the students should not be evaluated and awarded four times for the same project. Instead, the Master Thesis Project should be given an overall score of 50 or 60 ECTS credits and that score includes all the parts necessary to complete it.

There may be possibilities for the better integration of the studies. The institution and the department make the efforts to further improve their courses. The lecturers from abroad and the visiting teachers from other Lithuanian universities and institutes are invited to give courses to the Neurobiology students. During the site-visit meeting, the students indicated the courses with a larger (mixed) groups from the different study programmes, such as in the courses in genetics, several joint courses with the students of biophysics and the joint elective courses (with the students from other study programmes) as the good examples. Distant learning methods are developing on the University level.

Master thesis projects are done in research groups at the University or in other departments and institutions. The mentoring system is organized in the remarkable manner and the students can choose topics both from the list of the topics offered at the University or by their own choice, after the consultations with future mentors, usually every year in September. Also the literature and information necessary in the process are easily accessible (Site-visit, meeting with students) and include libraries, online materials and research databases. Performing projects in different research institutions contribute to diversity of the aims and topics and ensures future research collaborations. When doing research in other institutions, students have supervisors with PhD degrees. These supervisors also participate in the Master thesis defense committees. However, during their stays in other institutions, the students are not in permanent contact with their mentors at the university.

It was noticed during the site-visit that the Discussion part of the Master theses is mainly short and not informative enough.

Since many students do their research in other institutions, it is advisable that the institution and teachers offer their materials and assignments online, creating blended (hybrid) courses. This methodology would enable students to be in permanent contact with their mentors, the employed students to access the materials more easily, and also people with disabilities, foreign students etc. Also, by this approach, the learning, assessment and assignment methodology could be further diversified.

Judging by the staff scientific achievements (Appendix 3), learning outcomes (The Neurobiology Self Assessment, p7), recommended literature (Appendix 1) and the achievements and results of the students (The Neurobiology Self Assessment, p 29-30), there is no doubt that the programme reflects the latest achievements in science and is more than appropriate for the level of study.

3. Staff

All of the teachers are active researchers, active participants of national as well as international scientific programs. Teaching staff participate in NATO, COST, and EURECA research programmes, running 15 international projects; along with that they run 20 national projects and nine EU Structural Funds funded projects; (The Neurobiology Self-Evaluation Report, p22 and Appendix 9). The list of international and national publications (Appendix 3) show permanent and a high-quality research activity. Competence of the academic personnel of the Programme is in full compliance and exceeds the legal requirements (The Neurobiology Self-Evaluation Report, p22-23).

The number of staff is sufficient for the provision of the study programme and the composition of the staff (3 teachers working in institutions outside VU) ensures the cooperation among the institutions. Teachers/students ratio is high ensuring individualized approach, adequate number of contact hours for consultations and mentoring for the research activities.

During the site-visit, at the meeting with teachers, the evaluation team indicated that it could be a problem with a closed environment if the most teachers had their PhD from the same department. It was emphasized that some of the teachers have a significant experience working in other institutions. Also, the University legislature assures the constant professional development of the teaching staff (The Neurobiology Self-Evaluation Report, p23), including research cooperation with universities and research centres in the country and abroad (for example Lithuanian University of Health Sciences, Republican Vilnius Psychiatric Hospital Central Institute of Mental Health Institute of Psychopharmacology, Mannheim, Germany, Helsinki University, Finland, University of Copenhagen, Denmark, University of South Bohemia, Ceske Budejovice, etc) and participation in the international and national meetings (e.g. International Motoneuron Meeting – Sydney 2012, “Parasites and infectious diseases in a changing world” Oslo 2011, Congress of Lithuanian Psychologists, 2012, „Tissue engineering and regenerative medicine“; Vienna (Austria), 2012, 6th International Association for Dental Research Pan-European Region Meeting (IADR/PER); Helsinki (Finland), 2012, 8th FENS Forum of Neuroscience, Barcelona, Spain, 2012 and many others – see Appendix 6).

4. Facilities and learning resources

Facilities are adequate for learning purposes and the quality of learning and research equipment is assured by the intrinsic University funding, funding by the Ministries and through the agreements with other laboratories and other institutions (<http://www.biofizika.gf.vu.lt/lt/studijos/temos-studentu-moksliniam-dar>). Faculty of Natural

Sciences has 28 digitally equipped auditoriums with the capacities for more than 1000 students and three additional computer classrooms. There are 13 teaching laboratories with a total 179 working places. The laboratory equipment is of remarkable quality (Appendix 7). During the site-visit, the evaluation team noted that there is a limited working space within the premises and that the institution generally needs a larger space for the equipment. It was emphasized that the building in which the faculty resides is protected as a national monument, and there are very limited possibilities of adaptation and refurbishing. The plans for a new center with modern and spacious laboratories is already in place (the Neurobiology Self-Evaluation Report, p.25).

The Library has a capacity of 40 places but is also connected to the university computer network via which students in the campus or elsewhere outside the university can easily access the available e-resources, either local or web-based. However, during the meeting with students and alumni at the site-visit, the evaluation team learned that the physical capacities of the library are not big enough, that the number of the most necessary books is not always adequate and there are not enough copies. On the other hand, online access to the research database was estimated as very good.

5. Study process and student assessment

The admission criteria for the students are precise and well founded as depicted in Table 4 and Table 5 of the Neurobiology Self-Evaluation Report. Organization of the studies is generally effective, fulfilling the aims and the outcomes of the programme.

During the site-visit, at the meetings with students and alumni, the evaluation team found a great level of satisfaction with Master studies in Neurobiology, well organized and well covered lectures, well supported study system, adequate number of contact hours with professors, well based mentoring system. Students also have the introductory lectures and are well provided with information about the courses, lecturers, mobility programmes, and other points of interest. The lectures and practicals were well supported with books, printed materials, power-point presentations posted online etc. Also, students have access to the optional books in English, and journal articles. There is also a database of laboratories/institutions for practices and the information is permanently available to students. The students may choose the most adequate research place for the respective topic. It is important that the university regularly evaluates the places that offer practices, in order to secure that the students get good competencies. The results from the practices are presented in the department.

Although the laboratory and practical work tend to be the high priority of the Master Study Programme (the Self-Evaluation Report), almost all of the students and alumni interviewed suggested even more practical and laboratory work during the Master studies. However, students were also aware that the research techniques are special and expensive. Also, the social partners are active in offering students the opportunities to complete their theses in their respective institutions and their find their different backgrounds as advantage.

The students significantly participate in the Erasmus mobility programs, and have a well-organized institutional support. Students are involved as junior staff in realization of national research projects, funded by the national authorities. Students also attend scientific seminars and meetings and summer studies. Additional financial support for the students may be given from the Lithuanian science fund for Master project. The Neuroscience association may also give scholarships.

Career Center regularly informs students about job and internship opportunities via e-mail. University and the Career Center organize career days, where they have information about job

opportunities and co-operation with companies. The majority of graduates (54%) (Neurobiology Self-Evaluation Report p13) proceed to the PhD level and are employed in universities and research institutes, medical hospitals and health services, or in the biotechnological and pharmaceutical companies. The self-evaluation report states that 71% of graduates are working according to their specialty. The students know that there are possibilities for working in companies after their studies. Still, the career center should be more active in the career counseling with the students starting the Master Programme. Also the procedure of choosing and sending students to internships and for job opportunities should be structured and rely on objective criteria instead of current non-formal contacts between the employers and the University.

The teachers have the opportunity to improve their pedagogical approaches by attending courses organized by the central quality management (meeting with teachers). These courses cover subjects like: how to improve the subjects, language courses, how to improve psychosocial environment in courses. The staff giving the courses for the teaching staff is from the university, but also from other universities when needed. Some teachers also attend the Erasmus courses abroad, in order to improve their competencies as teachers. The courses are not compulsory, however, since the teachers are evaluated every five years, the proof of improving their pedagogical competencies is very important. Also, it was emphasized in several occasions during the study visit meetings, that the researchers and students need additional courses in mathematical data miming / statistics. The University has already taken steps to ensure the start of these courses.

The assessment strategies are diverse and include evaluation of exams, tests, seminars, practicals, laboratories; discussion groups/project groups, presentations, and project work, reviews, analyses, reporting. Formative assessment methodology includes discussions and presentations, laboratory exams, peer learning and evaluation, students self assessment, surveys, solutions for the certain problems. Laboratory work is assessed both in formative (during the year) and summative ways (research project defense, Master thesis defense). Students are evaluated and get a diploma (not the FELASA diploma, though) after the animal course.

However, the assessment methods should be more specifically linked to the subject learning outcomes so the learning outcomes could be objectively measurable. The process of cyclic evaluation of learning outcomes and methodology based on the specific assessment (examination) results should be integrated into the existing courses within the programme. The assessment method consisting of measurement the duration (not the quality) of the presentation (appendix 1) should be changed in order to match the desirable skills more closely.

The drop-out rates for the period 2008-2012 was 20%; the main reasons are health and financial problems. The department should increase the opportunities for people having health problems (such as distant learning, e-learning) in order to offer equal opportunities for them.

6. Programme management

Responsibilities and monitoring of the programme are (The Neurobiology Self-Evaluation Report, p30-31) clearly distributed both on University and the Faculty level and on the Department level as well. The major changes in the study programme are the responsibility of the Senate and Council, while the changes within the content of the course rely mainly on the Study Programme Committee and the Department.

The University/Faculty policy has been to follow the labor market requirements quite strictly and therefore, the unemployment rate is 0%. This year, however, the number of students in the

programme was increased to 13, increasing the competition among the students (the site-visit meeting with the students) and providing another opportunity to increase the incomes of the study programme. This change, (as the evaluation team could learn during the site-visit meeting with teachers and the self-assessment team) was not dictated by the needs of the labor market, but the decision was made on the central university level.

Additional funding options for the study programme are to be considered in order to maintain high quality of the equipment, premises and staff. One of the options is increasing the incoming students' and researchers' mobility. At the moment the faculty owns the superior research equipment, a modern study programme and good balance between practical and theoretical courses given by highly qualified teachers. Increased promotion of the study programme should broadly emphasize these facts. There are already courses that may be given in English, and they have several Erasmus students every year. The Programme Committee also considers joint courses in English, with other departments.

The faculty already cooperates with the international business school and it could offer courses to teachers from school to increase incomes. The additional option is the increasing the cooperation and services for the other companies and establishment of the research-business cooperation and business incubator.

Internal quality assurance measures and policy are well placed (the Neurobiology Self-Evaluation report, p 30-34) and with clearly distributed responsibilities on all levels. The semester student evaluation of the study programme and courses is managed by the central system of the faculty and is important for the improvement of the study programme. However, there is no high response level (site-visit meeting with students) since they have the opportunity to give their remarks directly to the teachers during the contact hours. The class/module exit student surveys and questionnaires serve the teachers for the day-to-day improvements in the courses and methodology.

The organization of students' individual representatives and representative bodies is regulated by the University legislature. The students have the opportunity to influence study programme and courses content and evaluation by their representative in the Programme Committee. Also student representatives are the part of the VU Council.

III. RECOMMENDATIONS

1. There is double credit system given to the research projects and the Master thesis; in this way, the same achievements have been given credits two times during the Master Studies. The Master Thesis Project should be given an overall score of 50 or 60 ECTS credits and that score should include all the parts necessary to complete it. The research projects, which are actually part of the Master Theses, should not be separately credited;
2. Significant students' achievements in publishing research results are to be evaluated and incorporated in the assessment scheme;
3. The Discussion part of the Master thesis is to be expanded. It is important because in that part, the analytical skills, synthesis of data, putting the research results in the contents of wider scientific scope are shown;
4. The courses of ethics must be compulsory for all the students on the Master Study Programme;
5. Learning outcomes on the level of the courses should be harmonized and diversified in order to match the Study Programme learning outcomes;

6. Learning methodology should be even more tightly linked to the individual learning outcomes. Every learning outcome should have adequate and specific methods of learning;
7. The assessment methods should be more specifically linked to the learning outcomes so the learning outcomes could be objectively measurable. There may be possibilities for the better integration of the studies. The students indicated the courses with larger (mixed) groups from the different study programmes as the good examples;
8. It is advisable that the institution and teachers offer their materials and assignments online, creating blended (hybrid) courses. This methodology would enable students to be in permanent contact with their mentors, the employed students, people with disabilities and health problems, foreign students to access the materials more easily, and etc. Also, by this approach the learning, assessment and assignment methodology could be further diversified;
9. The number of books and copies of the existing books in the library should be increased;
10. The number of practical and laboratory work classes during the Master studies should be increased;
11. The Career Center should be more active in Career Counseling and mediate between the University and the social partners according to structured procedure;
12. The additional funding options for the study programme are to be considered in order to maintain high quality. The Department should make efforts in increasing the incoming mobility. Increasing the cooperation and services for the other companies and establishment of the business incubator should be considered.

IV. SUMMARY

The Master Study Programme in Neurobiology is well designed, research-based, flexible, and follows Bologna regulations. The aims and the scope of the study programme reflect the strategy, vision and tendencies in higher education and research in this area. The learning outcomes for the study programme are well designed and appropriate for the Master level studies. However, in several courses of the study programme (for example in Biotransport, Biophysics of Neuron, Biophysics of Sensory Systems) the learning outcomes of the courses should be revised and harmonized with the study programme learning outcomes.

The programme attracts students with different backgrounds, providing different approaches and increasing the research and professional diversity. Although the backgrounds are different, the study programme offers no bridging courses for upgrading the knowledge/skills.

The courses are distributed evenly, the number of courses per semester is in accordance with legislature. The credits are allocated according to the real workload. The Master thesis represents the integration of the overall knowledge and skills. The mentoring system is organized in the remarkable manner. The research institutions strongly cooperate in order to provide the best options for the students. The use of e-learning methodology can further expand the possibilities for such cooperation and further reduce drop-out rates. It was noticed that the Discussion part of the Master theses is mainly short and not informative enough. The elective subjects are related to the other fields, such as Medicine, Agriculture, Genetics, Zoology, Botany, Informatics, Psychology and Ethics. The elective courses in ethics are now elective, despite the importance of the subject. The assessment strategies are diverse. The learning and assessment methods should be better aligned and connected with each of the learning outcomes.

The programme reflects the latest achievements in science and is more than appropriate for the level of study. All of the teachers are active researchers, participants in scientific programs and their competencies exceed the legal requirements. They also have a significant experience

working in other institutions in the country and abroad. Equipment is modern and appropriate for the provision of the study programme.

The admission criteria for the students are precise and the organization of the studies is effective. The students express a great level of satisfaction with Master studies in Neurobiology, including lectures, support, contact hours, mentoring system and laboratories. They also wish for more practical work and a better library with more books and copies. The students significantly participate in the mobility programs, research projects, scientific meetings and summer studies. Career Center regularly informs students about job and internship opportunities, but should be more active in the career counseling. Also the procedure of choosing and sending students to internships and for job opportunities should be better structured.

Responsibilities and monitoring of the programme are clearly distributed. The current increase of the number of students in the programme will provide the opportunity to increase the incomes. Additional funding options such as better promotion with the aim of increasing the number of students from abroad, services for the other companies and establishment of business incubator should be considered. We recommend that the study programme makes more active links to social partners other than academic institutions, and involve these in the learning outcome development.

Internal quality assurance measures and policy are well placed. The students have the opportunity to influence study programme and courses content and evaluation by their representative in the Programme Committee.

V. GENERAL ASSESSMENT

The study programme Neurobiology (state code – 621C14001) at Vilnius University is given **positive** evaluation.

Study programme assessment in points by fields of assessment.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	4
2.	Curriculum design	3
3.	Staff	4
4.	Material resources	3
5.	Study process and assessment (student admission, study process student support, achievement assessment)	4
6.	Programme management (programme administration, internal quality assurance)	4
	Total:	22

*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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**VILNIAUS UNIVERSITETO STUDIJŲ PROGRAMOS *NEUROBIOLOGIJA*
(VALSTYBINIS KODAS – 621C14001) 2013-11-04 EKSPERTINIO VERTINIMO
IŠVADŲ NR. SV4-345 IŠRAŠAS**

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Vilniaus universiteto studijų programa *Neurobiologija* (valstybinis kodas – 621C14001) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	4
2.	Programos sandara	3
3.	Personalas	4
4.	Materialieji ištekliai	3
5.	Studijų eiga ir jos vertinimas	4
6.	Programos vadyba	4
	Iš viso:	22

* 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

Magistrantūros studijų programa *Neurobiologija* yra gerai sumodeliuota, paremta moksliniais tyrimais, lanksti ir vadovaujasi Bolonijos proceso nuostatomis. Studijų programos tikslai ir apimtis atspindi aukštojo mokslo strategiją, viziją bei tendencijas ir mokslinius tyrimus šioje srityje. Šios programos studijų rezultatai gerai suprojektuoti ir atitinka magistrantūros studijų

lygi. Tačiau reiktų peržiūrėti kai kurių studijų programų dalykų (pavyzdžiui, Biotransporto, Neuronų biofizikos, Sensorinių sistemų biofizikos) studijų rezultatus ir suderinti juos su studijų programos studijų rezultatais.

Programa pritraukia studentus, turinčius skirtingą kvalifikaciją, darančius skirtingas prielaidas ir didinančius mokslinių tyrimų bei profesinę įvairovę. Nors kvalifikacijos yra skirtingos, studijų programoje nėra siūloma jokių papildomų studijų jų žinioms / įgūdžiams gilinti.

Dalykai paskirstyti vienodai, dalykų skaičius per semestrą atitinka teisinius reikalavimus. Kreditai paskirstomi pagal realų darbo krūvį. Magistro darbuose atsispindi bendrųjų žinių ir įgūdžių integravimas. Vadovavimo sistema yra ypač gerai organizuota. Mokslinių tyrimų institucijos aktyviai bendradarbiauja siekdamas suteikti studentams geriausias sąlygas. Elektroninės metodikos naudojimas gali dar labiau išplėsti tokio bendradarbiavimo galimybes ir dar labiau sumažinti iškrentančių studentų skaičių. Buvo pastebėta, kad diskusijų dalis magistro darbuose daugiausiai būna trumpa ir nepakankamai informatyvi. Pasirenkamieji dalykai susiję su kitomis sritimis, tokiomis kaip medicina, žemės ūkis, genetika, zoologija, botanika, informatika, psichologija ir etika. Etika dabar yra tik pasirenkamasis dalykas, nepaisant jos svarbos. Vertinimo strategijos yra gana skirtingos. Mokymosi ir vertinimo metodai turėtų būti labiau suvienodinti ir susiję su kiekvienu studijų rezultatu.

Programa atspindi paskutinius mokslo pasiekimus ir yra daugiau nei tinkama studijų lygiui. Visi dėstytojai yra aktyvūs mokslininkai, mokslinių programų dalyvai, o jų kompetencija net viršija teisinius reikalavimus. Jie taip pat turi reikšmingos darbo patirties kitose šalies ir užsienio institucijose. Įranga yra moderni ir tinkama studijų programos vykdymui.

Studentų priėmimo kriterijai yra tikslūs, o studijų organizavimas – efektyvus. Studentai išreiškė aukšto lygio pasitenkinimą Neurobiologijos magistrantūros studijomis, įskaitant paskaitas, pagalbą, darbo valandas, vadovavimo sistemą ir laboratorijas. Jie taip pat pageidautų atlikti daugiau praktinių darbų ir norėtų, kad bibliotekoje būtų didesnis literatūros pasirinkimas ir daugiau knygų egzempliorių. Studentai aktyviai dalyvauja mobilumo programose, mokslinių tyrimų projektuose, mokslinio pobūdžio susitikimuose ir vasaros studijų programose. Karjeros centras nuolat informuoja studentus apie darbo ir stažuotių pasiūlymus, tačiau čia turėtų būti aktyviau teikiamos konsultacijos karjeros klausimais. Taip pat reiktų geriau sudaryti studentų siuntimo į stažuotes ir darbo pasiūlymų teikimo procedūrą.

Aiškliai paskirstytos atsakomybės ir programos stebėseną. Dabar didėjantis programos studentų skaičius skatins augti pajamas. Reiktų apsvarstyti papildomo finansavimo galimybes, tokias kaip aktyvesnė reklama, siekiant didinti studentų iš užsienio skaičių, kitoms bendrovėms teikiamos paslaugos ir verslo inkubatoriaus steigimas. Rekomenduojame, jog studijų programoje būtų aktyviau palaikomi ryšiai su socialiniais partneriais, o ne akademinėmis institucijomis, ir jie būtų įtraukiami į studijų rezultatų tobulinimą.

Gerai suformuluotos vidaus kokybės užtikrinimo priemonės ir politika. Studentai turi galimybę daryti įtaką studijų programai ir studijų dalykų turiniui bei vertinti savo atstovą programos komitete.

III. REKOMENDACIJOS

1. Vyrauja dvigubų kreditų už mokslinių tyrimų projektus ir magistro darbus suteikimo sistema; tokiu būdu už tuos pačius pasiekimus suteikiami dvigubi kreditai magistrantūros

- studijų metu. Magistro darbų projektui turėtų būti iš viso skiriami 50 arba 60 ECTS kreditų ir į jį turėtų įeiti visos jam užbaigti reikiamos dalys. Už mokslinių tyrimų projektus, kurie iš tiesų įeina į magistro darbus, nereikėtų skirti atskirų kreditų;
2. Reikšmingi studentų pasiekimai, publikuojant mokslinių tyrimų rezultatus, turi būti įvertinti ir įtraukti į vertinimo planą;
 3. Reiktų išplėsti magistro darbų diskusinę dalį. Tai svarbu, nes šioje dalyje atsiskleidžia analitiniai įgūdžiai, duomenų sintezė ir tai, kaip gebama įtraukti mokslinių tyrimų rezultatus į platesnį mokslinį kontekstą;
 4. Etikos dalykai turi būti privalomi visiems magistrantūros studijų programos studentams;
 5. Studijų rezultatai turėtų būti suderinti ir diversifikuoti studijų dalykų lygmenyje tam, kad atitiktų studijų programos studijų rezultatus;
 6. Reiktų labiau susieti mokymosi metodiką su asmeniniais studijų rezultatais. Kiekvienam studijų rezultatui reiktų skirti adekvatų ir specifinį mokymosi metodą;
 7. Vertinimo metodus reiktų labiau susieti su studijų rezultatais, kad studijų rezultatus būtų galima objektyviau išmatuoti. Reiktų atrasti galimybių, kaip labiau integruoti studijas. Studentai kaip gerus pavyzdžius įvardijo tuos dalykus, kuriuos lanko daugiau (mišrių) grupių iš skirtingų studijų programų;
 8. Patartina, kad institucija ir dėstytojai teiktų medžiagą ir užduotis internetu ir taip kurtų mišrius (įvairiarūšius) dalykus. Tokia metodika leistų studentams palaikyti nuolatinį ryšį su savo vadovais, o dirbantiems, neįgaliems ar sveikatos sutrikimų turintiems studentams, taip pat ir užsienio studentams, lengviau prieiti prie mokymosi medžiagos ir kt. Taip pat tokiu būdu mokymosi, vertinimo ir užduočių teikimo metodika galėtų būti labiau diversifikuojama;
 9. Reiktų padidinti knygų ir esamų knygų egzempliorių skaičių bibliotekoje;
 10. Magistrantūros studijų metu reiktų įvesti daugiau praktinių ir laboratorinių darbų dalykų;
 11. Karjeros centras, vadovaudamasis nustatyta tvarka, turėtų aktyviau konsultuoti karjeros klausimais ir tarpininkauti tarp universitetų bei socialinių partnerių;
 12. Siekiant palaikyti aukštą studijų programos kokybę, reiktų apsvarstyti papildomo finansavimo galimybes. Katedra turėtų pasistengti kelti atvykstamojo mobilumo programos dalyvių skaičių. Reiktų apsvarstyti bendradarbiavimą bei paslaugų teikimą kitoms bendrovėms ir klausimą apie verslo inkubatoriaus steigimą.