



PhD studies at the Faculty of Medicine, Vilnius University

Short history. The Faculty of Medicine was established at Vilnius University (VU MF) in 1781, and the first dissertation, which could be classified (according to modern standards) as belonging to the field of biomedicine, was defended after four years later – in 1785. Today, the Faculty of Medicine is known for its scientific activity both in Europe and many other countries. Throughout its lifetime, the Faculty of Medicine brought up famous medical doctors, scientists of high research qualification and academic education. At all times, dissertations were being prepared and defended at the Faculty – these works were important not only for Lithuanian biomedicine field, but on the global scale as well.

Main research topics for PhD studies at VU MF. During the recent years, doctoral students are involved into the following main research topics, carried out by the Faculty of Medicine:

1. Human genome diversity, its origin and phenotypic realization.
2. Human and public health, quality of life and environment.
3. Ethiopathogenesis, diagnostics, treatment of diseases: fundamental and clinical research, innovative technologies.

Research Fields for PhD studies at VU MF. At present, doctoral studies are covering three fields of Biomedicine area (with no limitations to scientific branches): MEDICINE (06 B), ODONTOLOGY (07 B) and PUBLIC HEALTH (09 B). The process of the doctoral studies and the research, conducted by the doctoral students, are coordinated by Dean of VU MF, Vice-Dean for Research and PhD studies, and three Doctoral Committees (for Medicine, Odontology and Public Health fields). The doctoral studies at VU MF are financed from the budget of the Republic of Lithuania, also by structural funds of European Union.

Dynamics of PhD students at VU MF. Recently, about 20 to 25 doctoral students are admitted into the field of Medicine, while Odontology and Public Health fields usually receive 1 to 4 PhD positions per year (Figure 1). However, during the recent years, there has been an increase in the number of admitted doctoral students by a third. The Faculty of Medicine currently lists almost 150 doctoral students.

Preparation and defence of dissertations at VU MF. Preparation of dissertations usually lasts 4 years, and is guided by one main supervisor. In case of interdisciplinary research, consultants are often invited, also from foreign universities. Besides, different Departments cooperate in PhD studies, being joined by other Lithuanian and foreign universities. At least one foreign scientist is always involved into the Dissertation's Defence Board. Doctoral students at VU MF are exceptionally successful in preparing and defending their dissertations, which are based on various branches of the biomedical sciences (Figure 2): the performance characteristics for the 2013–2017 period at the Faculty of Medicine are marked by more than a 90% success rate. On average, the aspiring doctors annually defend around 15 to 20 dissertations at the field of Medicine, few dissertations per year are defended at the field of Public Health. The first dissertation in Odontology field was defended in 2016.

Figure 1. Number of PhD Students by Biomedicine Field, Faculty of Medicine, Vilnius University, 2013-2017

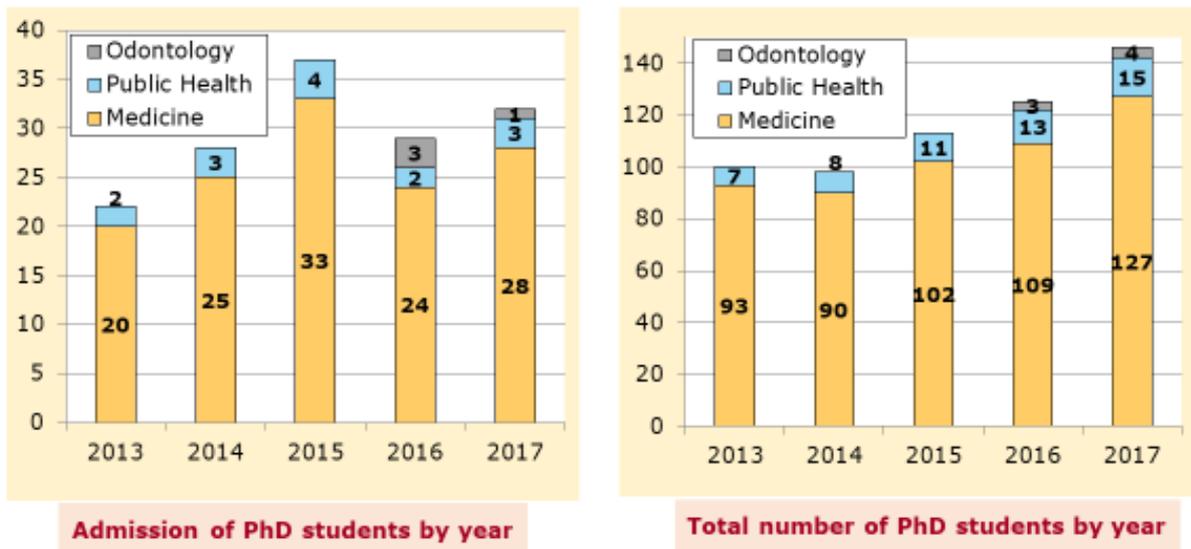
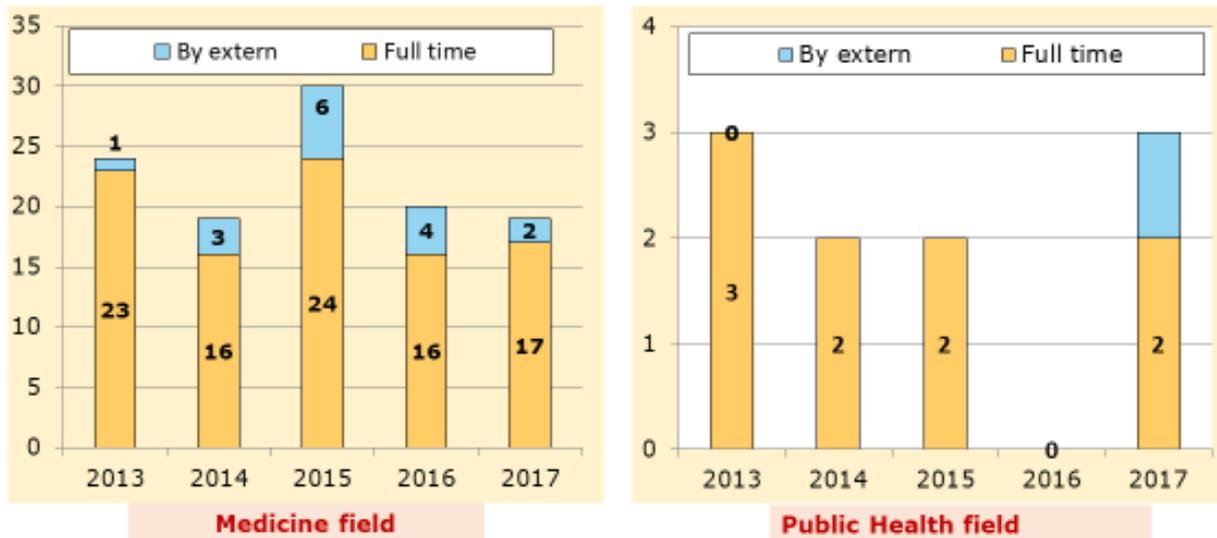


Figure 2. Dissertations, defended at the Faculty of Medicine, Vilnius University, 2011-2017

The success rate of PhD studies at the Faculty of Medicine exceeds 90% (one of the highest at Vilnius University)



P.S. In 2016, one doctoral dissertation was maintained in Odontology field.

Research activity of PhD students. VU MF doctoral students provide substantial contribution to many publications and to majority of projects carried out by the Faculty of Medicine. In the past 5 years, VU MF doctoral students have been actively engaged in more than 30 projects that were financed from the budget of Vilnius University and almost 10 state-run projects as well. MF doctors are actively participating in the following international projects:

- *Taiwan-Latvia-Lithuania Cooperation Project. Functional Model for the Mitochondrial Disease Evaluation and Biomarker Development, 2015–2017.*
- *User Driven Innovation: Symptom Monitoring after Hospitalization in Patients with Advanced Heart Failure: A Nordic Baltic Study, 2015–2018.*
- *Safe Implementation of Treatment of Stroke (SITS) – EAST Project, carried out since 2002 up to now.*
- *EMerging EUlar NETwork (EMEUNET), carried out since 2013 up to now.*

International cooperation in PhD studies. In running PhD studies and preparing the dissertations, VU MF is actively cooperating with the following foreign research institutions:

- University of Vienna (Austria);
- Ghent University (Belgium);
- University of Copenhagen (Denmark);
- University of Tartu (Estonia);
- University of Central Florida (US);
- University of Minnesota (US);
- Lancaster University (United Kingdom);
- Riga Stradiņš University (Latvia);
- Medical University of Łódź (Poland);
- University of Warsaw (Poland);
- Nicolaus Copernicus University in Toruń (Poland);
- University of Groningen (the Netherlands);
- Aix-Marseille University (France);
- Karolinska Institute (Sweden);
- Malmö University (Sweden);
- University of Zürich (Switzerland);
- University of Düsseldorf (Germany);
- Heidelberg University (Germany);
- Max Planck Institute (Germany).

Scientists from these and other foreign universities consult PhD students at VU MF, participate at the dissertations' defence procedures, give key note invited lectures at the special conferences organized for doctoral students. PhD students constantly participate in local trainings, workshops and conferences, they also participate in joint research projects at foreign universities, take part at international conferences and seminars.

Interdisciplinary trend in PhD studies and research. Since 2012, and for every two years, VU MF has been organizing international, inter- and transdisciplinary conferences on the topic of Evolutionary Medicine for PhD students and other young scientists:

- *Evolutionary Medicine: new solutions for the old problems*; June 12–15, 2012.
- *Evolutionary Medicine: perspectives in understanding health and disease*; May 27–30, 2014.
- *Evolutionary Medicine: pre-existing mechanisms and patterns of current health issues*; June 14–19, 2016.
- *Evolutionary Medicine: health and diseases in changing environment*. June 5–8, 2018.

The purpose of these conferences is to assemble all PhD students – not only from the field of medicine, but other scientists as well (biologists, anthropologists, psychologists, physicists and others) in order to pursue interdisciplinary approach with respect to variety of human organism, evolutionary background and ongoing changes in its health status and clinical pathology. During these conferences, key note speakers are usually invited from many universities around the globe (Austria, Belgium, Croatia, France, Great Britain, Italy, Poland, Switzerland, Germany, USA, and other countries). Such conferences provide excellent opportunities for VU MF young researchers to share the results of their studies with scientists from the other fields in an international environment, acquire experience in preparing podium presentations, exchange know-how and learn from both their Lithuanian and foreign colleagues. There are several examples of productive outcome for collaboration: during these conferences many PhD students from different research areas, fields and branches have started joint research projects (for example, radiologists, cardiologists and neurologists; anthropologists, gynaecologists and paediatricians; radiologists, physicists and histologists).

PhD studies and postdoctoral carrier at VU MF. The majority of the MF doctoral students who had defended their dissertations successfully continue their careers at VU MF (for the period of 2013-2017, approximately 60-70% of all graduates): the majority of them hold academic staff positions, and only 10-15% are employed as research fellows. Around 80% of all postdoctoral research fellows are active participants of different research projects carried out at VU MF (financed by VU funds and various other national or international grants as well).

Since 2017, the Faculty of Medicine, Vilnius University, began collaboration with the University of Oslo within *Horizon 2020* program in order to prepare for the forthcoming project *Scientia Fellows II* which purpose is to enhance career possibilities for postdoctoral researcher fellows, expanding international cooperation between young scientists, developing doctoral and postdoctoral internships. In addition, also since 2017, VU MF began participating in another *Horizon 2020* project – *Alliance for Life: Closing Research and Innovation Divide in the European Union (2017–2019)*. The aim of the project is to estimate various differences among the EU states regarding the research inequalities: possibilities for conducting research projects and receiving grants, research infrastructure, financing, management and the evaluation of research quality; an additional aim of this project is to put special emphasis on the development of doctoral studies, to strengthen postdoctoral internships and establish a career centres for junior scientists.

ORPHEUS organization and VU MF. The Faculty of Medicine is a member of the international organization ORPHEUS (*Organization for PhD Harmonization in Biomedicine and Health Sciences in the European System*). This organization unites over a hundred scientific establishments from 40 global states; it serves to refine PhD studies, seeks for uniform standards for dissertations in the EU, strengthens career opportunities for postdoctoral students. Representatives of the Faculty of Medicine continually participate in conferences and meetings organized by ORPHEUS, the delegates of VU MF provide their input and share their positive experiences. Lately, we've been preparing for an accreditation issued by the ORPHEUS organization in order to acquire the international certificate of this organization – as proof that the doctoral studies being conducted at VU MF are of high quality and conform to the standards that are set by ORPHEUS.

Future plans. We plan to establish a Doctorate School – this would aid in realizing VU MF goals of integrating itself more efficiently in the international area of doctoral studies and increasing the mobility of the doctoral students. With this important unit of our structure, we aim to set up optimal conditions for our aspiring PhD students to not only conduct inter- or transdisciplinary research of the highest quality, but to improve themselves with regard to their general competencies, share positive experience and to continue their postdoctoral career after acquiring their degrees.

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