Petre Shotadze Tbilisi Medical Academy

Title of the programme: Medical Sciences

Awarded degree: PhD in Medicine

Programme duration / volume in ECTS credits: Duration of studies in doctoral programme is 3-5 years (6-10 semesters, 30 ECTS credits, 1 ECTS = 25 hours)

Language of instruction: English

Date of programme development and update: Program was developed in 2023

Head(s) of the programme: Ekaterine Kldiashvili, Professor

Programme prerequisites:

- Master's or equivalent academic degree*
- Application - research proposal
- Proficiency in English language at B2 level**

** Georgian and foreign country citizens with an MD diploma selected on the background of the open competition are eligible. The admission process and its performance are defined in the document "Petre Shotadze Tbilisi Medical Academy Regulations of Scientific-Research and PhD Department and Dissertation Board".*

***Proficiency in English language is confirmed by: a) valid international[1] certificate and/or document issued by National Assessment and Examinations Center; b) diploma confirming the completion of a master's or equivalent English language educational programme[2].*

Aim(s) of the programme:

Doctoral programme "Medical Sciences" aims to prepare highly qualified professionals for research and pedagogical activities in biomedicine, medicine and related fields.

[1] The requirements for the international English language certificate are defined in the document "Petre Shotadze Tbilisi Medical Academy Regulations of Scientific-Research and PhD Department and Dissertation Board".

[2] The diploma issued in a foreign country must be recognized by the National Center for Educational Quality Enhancement.

Learning outcomes:

Learning and understanding:

- **LO-1:** Graduate explains data of concrete research and its related scientific field, discusses their importance
- **LO-2:** Graduate explains experimental model and develops research design according to specificity of research topic/scientific field and in compliance with bioethical standards

Skills:

- **LO-3:** Graduate analysis and evaluates obtained results, formulates original conclusions and plans innovative research activities
- **LO-4:** Graduate analysis problems and evaluates risk-factors, formulates alternative solutions

Responsibility and autonomy:

- **LO-5:** Graduate according to the principles of academic integrity and writing standard formulates and presents original research paper
- **LO-6:** Graduate conducts pedagogical activity in biomedicine, medicine and related fields

Alignment of programme aims and learning outcomes:

Programme aim(s) / **Learning outcomes**	To prepare highly qualified professionals for research and pedagogical activities in biomedicine, medicine and related fields
LO-1: Graduate explains data of concrete research and its related scientific field, discusses their importance	**X**
LO-2: Graduate explains experimental model and develops research design according to specificity of research topic/scientific field and in compliance with bioethical standards	**X**
LO-3: Graduate analysis and evaluates obtained results, formulates original conclusions and plans innovative research activities	**X**
LO-4: Graduate analysis problems and evaluates risk-factors, formulates alternative solutions	**X**
LO-5: Graduate according to the principles of academic integrity and writing standard formulates and presents original research paper	**X**
LO-6: Graduate conducts pedagogical activity in biomedicine, medicine and related fields	**X**

Field of employment: Academic and research institutions/organizations operating in biomedicine, medicine, health and related fields. After completing the doctoral programme "Medical Sciences" graduate will have an opportunity to work:

- As a researcher in private and state projects
- As a researcher in clinical trials
- As academic personnel of the university
- As advisor/consultant in private and state organizations

Methods to achieve learning outcomes:

Teaching format and methods:

Interactive group work – is applied within the frames of a doctoral programme; this activity is based on an active learning method and is carried out in a small group. Interactive group work may include discussion of theoretical material, analysis of a practical situation, discussion on a specific topic, and etc.

Consultations – are applied for review and discussion of theoretical and practical tasks.

Practical work – aims to apply theoretical knowledge to conduct research or practical activity / experiment. Practical work may include a research seminar, colloquium, preparation of a case / project / research paper and etc.

Furthermore, doctoral student conducts research seminars and an assistance component - they participate in TMA teaching and research processes.

The pathway of the doctoral programme "Medical Sciences" is based on concepts "learning by doing" and "learning by teaching", those are considered as the most effective ones.

Programme structure

The curriculum of the doctoral programme "Medical Sciences" includes two components:

- The educational component, that is valued at 30 ECTS credits, and
- The research component.

The educational component aims to facilitate the development of doctoral student's methodological skills in biomedicine, medicine, medical education and related fields. The doctoral student completes mandatory and elective learning courses as defined by the doctoral programme, prepares and deliveres learning courses of TMA's one-step medicine educational programme(s) as agreed with their research supervisor, as well as TMA academic and administrative staff. Additionally, they mentor the planning and implementation of student research project(s).

The research component focuses on finding, reviewing, analyzing and interpreting research material relevant to the topic of doctoral dissertation. This includes reviewing existing knowledge, formulating research hypothesis, conducting research, collecting and analyzing of data, preparing and publishing research paper(s), and finally, preparing, presenting and defending the dissertation. The dissertation is organized in accordance with strictly defined academic standards and the publication format specified in the document "Academic Writing Standard of Petre Shotadze Tbilisi Medical Academy".

The educational component is valued at 30 ECTS, it includes 3 mandatory (20 ECTS) and 6 elective learning courses.

The research component includes 4 mandatory activities.

Curriculum:

Course	Status	ECTS credits	Semester								
			I	II	III	IV	V	VI	VII	VIII	IX	X
Educational component - 30 ECTS												
Medical education	M*	5	x									
Assistance	M	10			x	x	x	x	x	x	x	
Research methods	M	5	x									
Academic writing	E**	5	x									
Statistics	E	5	x									
Assessment in medical education	E	5		x								
Research proposal writing	E	5		x								
Principles of Public Health	E	10		x								
Epidemiology and biostatistics	E	5		x								

Research component										
Activity	Semester									
	I	II	III	IV	V	VI	VII	VIII	IX	X
Prospectus	x	x								
Research seminar			x	x	x	x	x	x	x	
Research publication		x	x	x	x	x	x	x	x	
Performance and defense of doctoral dissertation			x	x	x	x	x	x	x	x

**M – mandatory learning course*

***E – elective learning course*

Research component. The implementation of the research component by the doctoral student begins in the very first semester. Initially, this includes the preparation and defense of the prospectus.

Prospectus. Doctoral programme "Medical Sciences" begins with the development of prospectus. Doctoral student in collaboration with their research supervisor, prepares the prospectus based on the data presented in research proposal (defined by document "Petre Shotadze Tbilisi Medical Academy Regulations of Scientific-Research and PhD Department and Dissertation Board"). Doctoral student fulfills this activity together with research supervisor for the aim to:

- Define the topic/problem of doctoral research
- Perform literature review, that aims review and analysis of existing scientific knowledge, experimental concepts and designs, and research methods specific to the topic/problem of doctoral research
- Formulate the aim(s), objectives and methodology of research
- Define the research plan and expected results
- Organize references.

As part of this activity the doctoral student receives consultations on topics such as research methodology, statistical analysis, bioethical aspects, and the formulation and presentation of the research project. These consultations are provided by the staff involved in implementation of the doctoral programme. The development of the prospectus also includes a review of the planned doctoral research by the TMA Bioethics International Committee. This review ensures that the research is conducted in accordance with internationally recognized bioethical standards, safeguarding the safety, rights, dignity, autonomy and well-being of the research participants. This activity concludes with the submission of the prospectus and its defense before the dissertation defense commission (defined by the document "Petre Shotadze Tbilisi Medical Academy Regulations of Scientific-Research and PhD Department and Dissertation Board) by the end of the first or second semester of the doctoral programme.

Research seminar. After defending the prospectus, the doctoral student is required to complete a research seminar each semester. This activity is intended to present the progress and results of doctoral student's research to TMA faculty, students, and partner institutions representatives. It follows a plan that is agreed upon in advance by the doctoral student and their research supervisor. The research seminar as a growth oriented (developmental) assessment of doctoral student's performance provided in each semester by the research supervisor, and it is a prerequisite for the doctoral dissertation defense.

Research publication. Within the framework of the doctoral programme "Medical Sciences", it is mandatory to publish or submit for publication at least 2 articles related to the doctoral dissertation topic in scientific journals indexed in international scientific databases (Scopus, ScienceDirect, PubMed, Medline, EBSCO, ERIH Plus, Web of Science, etc.). The requirements for research article publication are outlined in the document "Petre Shotadze Tbilisi Medical Academy Regulations of Scientific-Research and PhD Department and Dissertation Board".

Thus, the progress of the research component within the doctoral programme "Medical Sciences" (excluding the prospectus) is confirmed by the research supervisor. They provide a developmental (growth oriented) evaluation of the doctoral student each semester, which serves as a prerequisite for the doctoral thesis defense.

Educational component. As mentioned above, the educational component of the doctoral programme "Medical Sciences" is valued at 30 ECTS credits and includes 3 mandatory and 4 elective courses. Its structure and implementation principle are designed to facilitate the doctoral student's research activities and career development.

As part of the doctoral programme "Sciences of Medicine", the doctoral student creates an individual study plan in consultation with their research supervisor and the Scientific-Research and PhD department. The only exception is the teaching course "Assistance".

Assistance. Doctoral students are integrated into TMA's academic processes after defending their prospectus. They may assist in teaching and/or research. Specifically, the doctoral student, in a role of lecturer, is responsible for delivering a course from the curriculum of TMA's one step medicine educational programme(s). The planning of this activity involves the doctoral student, their research supervisor, the Scientific-Research and PhD Department and Dean of a school of medicine. In case of this educational component for the doctoral student it is mandatory to complete the learning courses "Research methods" and "Medical education" as part of the "Medical Sciences" doctoral program. The assistance also includes mentoring students in their research activities. This teaching component of the doctoral programme involves growth oriented (developmental) assessment of the doctoral student's performance, which is conducted every semester by a responsible person. It is a prerequisite for the doctoral dissertation defense.

Three levels of competence assessment are used within the doctoral programme "Medical Sciences", which can be explained as:

- **Development (D):** reflects explanation, doctoral student "knows how"
- **Practice (P):** reflects performance, doctoral student "shows how"
- **Mastering (M):** reflects action, doctoral student "does".

Course	Status	ECTS credits	Semester	LO1	LO2	LO3	LO4	LO5	LO6
Educational component – 30 ECTS									
Medical education	M*	5	I-II	D	D	P	P	P	P
Assistance	M	10	III-IX	M	M	M	M	M	M
Research methods	M	5	I-II	P	M	M	P	P	P
Academic writing	E**	5	I-III	M	P	M	P	M	P
Statistics	E	5	I-IX	P	P	M	M	M	M
Assessment in medical education	E	5	II-IX	P	P	M	M	M	M
Research proposal writing	E	5	II-IX	M	M	M	M	M	M
Principles of Public Health	E	10	II-IX	P	P	P	P	P	D
Epidemiology and biostatistics	E	5	II-IX	P	M	P	P	P	D

Research component - Activities									
Prospectus	M	--	I-II	P	M	P	D	M	D
Research seminar	M	--	III-IX	M	M	M	M	M	M
Research publication	M	--	III-IX	M	M	M	M	M	P
Performance and defense of doctoral dissertation	M	--	III-X	M	M	M	M	M	M

**M – mandatory learning course*

***E – elective learning course*

Assessment system within frames of educational component of the doctoral programme "Medical Sciences"

Doctoral students are awarded the appropriate credits in case of positive assessment by completion of the course of the Petre Shotadze Tbilisi Medical Academy PhD programme. The evaluation of a doctoral student's competency is accomplished by a 100-points assessment system. The doctoral student gathers 60 points through intermediate assessments for the performed presentations. The final component is worth 40 points. To qualify for the final assessment, doctoral students must gather at least 31 points from the intermediate assessment. Taking into account the specificity of the course, the final component is defined as a research paper - analytical essay, research proposal, research report, scientific publication, etc.

Doctoral students are awarded ECTS credits upon completing the course within the frames of the Petre Shotadze Tbilisi Medical Academy's doctoral programme if they gather at least 51 points from available 100. If a doctoral student's assessment falls within the range of 41-50 points, they are permitted to resubmit a revised version of the final component, without repeating the course. The resubmission must occur at least 5 days after the initial submission, based on prior agreement with the teaching staff. If a doctoral student scores 41 points, they are required to retake the learning course.

The scheme of point distribution in the assessment system of the learning courses of the doctoral programme "medical Sciences" is the following:

91-100 (A) – Excellent
81-90 (B) – Very good
71-80 (C) – Good
61-70 (D) – Satisfactory
51-60 (E) – Sufficient
41-50 (FX) – Failed, with the right to retake the final component
0-40 (F) – Failed, to receive the credit doctoral student should take a teaching course repeatedly

Assistance

The educational component "Assistance" of the doctoral programme "Medical Sciences" envisages a developmental semester-based evaluation, that is focused on the following aspects of activity performed by doctoral student:

- Content value
- Principles of planning
- Improvisation and innovativeness
- Technical aspects
- Adherence to the instructions.

Assessment principles within the frames of research component of the doctoral programme "Medical Sciences"

Prospectus

The assessment of the prospectus within the framework of the doctoral programme is conducted by the dissertation defense commission (outlined in "Petre Shotadze Tbilisi Medical Academy Regulations of Scientific-Research and PhD Department and Dissertation Board"). This process involves a 30 min presentation to the commission, that presents:

- Theme/problem and actuality of research topic
- Literature review
- Goals, objectives and/or scientific hypothesis
- Methodology
- Plan and expected results
- References.

In case of prospectus assessment, the dissertation defense commission is guided by the dual principle of evaluation (yes/no) in accordance with the following criteria:

- Actuality of the defined theme/topic, adequate wording
- Aim(s) are clearly defined and formulated
- Research postulate/hypothesis
- Objectives relevance with topic and research postulate/hypothesis
- Research methodology
- Research methodology relevance with aim(s)
- Expected results
- Expected results relevance with research postulate/hypothesis
- Bioethical aspects
- Practical value of expected results
- Content value
- Presentation skills relevant to the topic
- Own argumentation, analysis
- Originality of conclusions, novelty of discussion
- The ability to clearly answer the questions
- Technical aspects and adherence to the time-limit for the presentation.

The dissertation defense commission is legitimate to evaluate the prospectus if the majority of the list of members is present at the meeting. The decision is made by open voting, with the majority of votes of the present members of the dissertation defense commission.

Research seminar

The assessment of research seminar is growth oriented (developmental), it is performed in every semester according to the following criteria:

- Content value of the performed activity
- Definition and presentation of the problem
- Data analysis
- Conclusion
- Improvisation and innovativeness
- Technical aspects
- Adherence to the instructions

Assessment of the doctoral dissertation and thesis defense

The assessment of the doctoral dissertation in the frames of the doctoral programme is performed according to the standards and procedures defined by the document "Petre Shotadze Tbilisi Medical Academy Regulations of Scientific-Research and PhD Department and Dissertation Board". The doctoral dissertation and the defense of the thesis are evaluated once. This process aims the evaluation of the thesis and its defense by each member of the dissertation defense commission according to 100-point system in accordance with the criteria defined by the "Regulations of Scientific-Research and PhD Department and Dissertation Board".

By summing up the evaluations based on the criteria presented above, the final evaluation of the dissertation is made according to the following principle:

Summa cum laude	excellent, 91-100 points	Excellent thesis
Magna cum laude	very good, 81-90 points	The thesis that strictly complies with the requirements defined by the criteria
Cum laude	good, 71-80 points	The thesis that meets the requirements defined by the criteria
Bene	average, 61-70 points	The thesis, which mainly meets the basic requirements defined by the criteria
Rite	sufficient, 51-60 points	The thesis that, despite its shortcomings, meets the requirements defined by the criteria
Insufficienter	insufficient, 41-50 points	Unsatisfactory thesis that fails to meet the requirements set out in the criteria, significant deficiencies are noted
Sub omni canone	unsatisfactory, 40 points or less	A completely unsatisfactory thesis