MEDICAL UNIVERSITY OF VIENNA

# Rules and Requirements

of the

# Doctoral Program of Applied Medical Science

**at the**

**Medical University of Vienna**



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## Goals

**§1.** The Doctoral Program of Applied Medical Science at the Medical University of Vienna aims at the further development of the competence for independent scientific work in medical and medicine-associated professions. The goal is to maintain as well as to increase the university's performance in applied research by a combination of research and practice. Furthermore, doctoral candidates are expected to acquire critical, analytic, and debating skills within the program.

The Doctoral Program of Applied Medical Science has been designed for interested junior researchers as well as for practitioners wishing to engage in science within their professions so as to relate novel findings to biomedical and clinical practice development. The doctoral candidates are supervised by highly-qualified practitioners intending to undertake research within their own discipline and develop it further. Training and support of young scientists is effected on the basis of a scientific approach corresponding to the principles of the Medical University of Vienna **(**GOOD SCIENTIFIC PRACTICE – Ethics in Science and Research, rules of the Medical University of Vienna).

Emphasis is placed on tuition by instruction (more than 21% of the duration of study), this being an integral part and representing a key portion of the program for the impartment of practice-related skills in the respective medical field. The research part is equivalent to the PhD Program and shall result in an original doctoral thesis with accompanying publications in renowned journals. Particular importance shall be attached to multidisciplinary topics. Thus, the Doctoral Program of Applied Medical Science provides the basis for the implementation, development, and management of professional medical practice.

Following graduation, candidates will acquire the necessary qualifications to work in a specific field of medicine, and their profiles shall correspond to the attributes listed below. Graduates will:

a. Seek to apply their knowledge, in contrast to the basic research-oriented PhD graduates;
b. Advance their theoretical and practical qualifications at a high standard;
c. Acquire knowledge of numerous biomedical methods and their application in medical research and practice;
d. Continue improving their practice through research;
e. Demonstrate effectiveness as professional practitioners;
f. Assume personal responsibility and autonomous initiative in complicated and unpredictable situations in their specific field;
g. Have the ability to plan, design, implement, and adapt a research project with scientific integrity;
h. Have the ability to express an opinion relevant to medicine in their specific field and to impart this opinion effectively to a specialist as well as a non-specialist audience;
i. Promote technological, social, and cultural progress in both academic as well as professional environments, within the context of an educated society.

## Admission Requirements

**§2**
(1) Admission requirements for the Doctoral Program of Applied Medical Sience at the Medical University of Vienna are:

a. Final degree in the diploma studies of Medicine or Dentistry or final degree in any natural scientific/technical, subject-relevant or subject-related diploma studies or final degree in any renowned national or international master studies that are equivalent to the above-mentioned diploma studies, whereby degree equivalencies will be decided by the rectorate.

b. Availability of a thesis topic within the framework of a reviewed research project, a thesis concept (3) and a supervisor's approval for the thesis.

(2) Individuals who fulfill the admission regulations according to §2 (1a) are eligible to choose a PhD thesis supervisor from the group of registered supervisors at the Medical University of Vienna in order to select a thesis topic so as to prepare a thesis concept together with the consenting supervisor.

(3) The selected supervisor and the thesis topic must be announced to the director of curriculum prior to admission to the Doctoral Program by submitting a written thesis concept abiding by the requirements of the director of curriculum.

## Duration of the Doctoral Program of Applied Medical Science

**§3.** The Doctoral Program of Applied Medical Science comprises one study period with the duration of six semesters (180 ECTS).

## Academic Degree

**§4.** Graduates of the Doctoral Program of Applied Medical Science are awarded the academic degree "Doctor scientiae medicae", in short "Dr.scient.med.", with the title preceding the name.

## Organization

**§5.** The Doctoral Program of Applied Medical Science at the Medical University of Vienna is primarily organized in the form of interdisciplinary thematic programs.

(1) CONTENTS OF PROGRAMS: The programs gather interested university members of individual organizational units/clinics with the goal of offering a comprehensive and high-quality training program in the respective subject areas. The doctoral candidates shall compose their thesis project within the framework of the program and additionally attend the required courses. The involvement of institutions and organizations outside of the Medical University is possible as long as the educational value is obvious.

(2) NAME OF PROGRAMS: The composition and titles of the programs originate from the initiative of those university members interested in the organization of such a program. The programs shall constitute a broad topical unity within the wide range of fields at the Medical University of Vienna, involving scientists of several organizational units/clinics. The list of programs is published by the curriculum director.

(3) ORGANIZATION OF PROGRAMS: The smallest organizational units are the supervisors. These project leaders are experienced in the instruction of doctoral candidates and provide thesis positions and salaries in the framework of research projects within the programs, as well as actively participate in training. The supervisors are responsible for the organization and composition of the thesis and the accompanying courses (e.g. seminars, journal clubs). Each program is presided by an appointed program coordinator (curriculum coordinator) who is responsible for arranging the program tasks. The program coordinator represents the program and reports to the curriculum director. Since the language of biomedical research and related research areas is English, the programs and accompanying courses are also held in English. Therefore, doctoral candidates are required to have a solid command of the English language. In exceptional cases and if well grounded, courses may also be held in German.

(4) ESTABLISHMENT OF PROGRAMS: Requests for the establishment of thematic programs can be submitted to the curriculum director and must refer to the research areas as defined in the development plan. The requests have to include information on:

- title;
- speaker;
- educational goal;
- doctoral thesis projects;
- qualification profile of supervisors;
- form, number, contents and lecturers of intended courses;
- techniques used;
- literature.

The curriculum director renders an expert opinion on the requests and modifies them accordingly. Following the expert opinion of the curriculum commission, the request is either granted or rejected.

Criteria for the evaluation of a request are as follows:

- structure of request;
- relation to the scientific strategy of university;
- Scientific treatment of a practice-relevant topic (job-relatedness);
- intra-university, national and international cooperation;
- significance for the development of the university;
- critical mass for supervising doctoral candidates and conducting associated courses;
- reviewed and funded thesis projects,
- qualification of supervisors.

(5) QUALITY CRITERIA FOR SUPERVISORS: The supervisors of thesis projects must:

- actively pursue scientific academic research work themselves (documented by a number of high-quality publications during the last six years);
- have been involved in the acquisition of extramural funds within the last six years;
- have experience and demonstrate involvement in the supervision of doctoral candidates;
- provide evidence for the education of doctoral candidates within the last six years a well as for publications with doctoral candidates/postdocs as first authors.

## Courses

**§6.** The Doctoral Program of Applied Medical Science comprises comprehensive training in the fields of the respective thesis topic as well as the acquisition of general skills for the scientific profession, so as to prepare the graduates for a career in various academic, medical, industrial and public scientific areas. This accompanying education is carried out in courses.

(1) COURSE TYPES

a) LECTURES provide an introduction into the basic concepts and systematics as well as a presentation of the scientific background of the respective topic; furthermore, they help to create interconnections and explanations of complicated issues.

b) SEMINARS are an important educational method for the acquisition of knowledge. Through active collaboration, doctoral candidates acquire skills for how to apply the acquired knowledge in the analysis and solution of a problem. This form of education encourages independent discussion of a theoretical problem on a scientific basis.

c) PRACTICAL SEMINARS impart knowledge and skills as well as an adequate human, scientific, and social attitude for professional practice within the respective specialized field.

d) JOURNAL CLUBS aim at the acquisition of skills for critical evaluation and discussion of scientific literature during regular, usually weekly, meetings, at which recent scientific articles are analyzed and debated.

(2) COMPULSORY COURSES: These are obligatory for all doctoral candidates.

a) PROPEDEUTICS: Introductory lectures and seminars to the extent of a total of six semester hours have to be provided, with an emphasis on natural science courses for medical students and an emphasis on medical courses for non-medical students. The general courses of the propedeutics impart the basic skills and qualifications for the scientific profession.

b) BASIC COURSES: An interdisciplinary interactive cycle of courses discussing the respective program topic in its full length is to be organized to a total four semester hours.

c) JOURNAL CLUBS are to be organized to a total of 12 semester hours.

(3) COMPULSORY COURSES: Within the framework of these courses, doctoral candidates are required to select thesis seminars to the extent of 16 semester hours.

a) THESIS SEMINARS are courses held to the extent of 12 semester hours which discuss specific aspects and methods of the program topics.

b) PRACTICAL SEMINARS held to the extent of 4 semester hours for the acquisition of skills.

The doctoral candidates as well as the supervisors are expected to participate in the seminars and journal clubs on a regular basis.

(4) STUDY PERIODS ABROAD: Doctoral candidates wishing to spend part of their studies at another appropriate national or international training institution have - according to the corresponding regulations of the Universities Organization Act 2002 and the rules of the Medical University of Vienna - the right to have the equivalence of the intended foreign study periods confirmed in advance by the curriculum director in an official letter.

(5) ECTS CREDITS: In terms of the European system for the accreditation of achieved study results (European Credit Transfer System, ECTS) the proportion of the study effort for the courses as mentioned under (2) is determined with one ECTS credit per semester hour, and the courses mentioned under (3) with 1,5 ECTS credits per semester hour. Thus, propedeutics are rated with six, the basic courses with four, and the thesis seminars and journal clubs with 12 ECTS credits, the thesis seminars with 18 ECTS and the practical seminars with six ECTS credits each, resulting in a total of 46 ECTS credits. The composition of the thesis topic makes up for the main part of the study effort and is rated with 134 ECTS credits assuming full time pre-occupation with the thesis.

## (6) PROPOSAL FOR A SEMESTER SCHEDULE

| ***COURSE*** | ***Semester hours*** | ***ECTS Credits*** |
|---|---|---|
| ***1. Semester:*** | | |
| Propedeutics | 4 | 4 |
| Basic Course | 2 | 2 |
| Journal Club | 2 | 2 |
| Thesis Seminar | 2 | 3 |
| ***2. Semester:*** | | |
| Propedeutics | 2 | 2 |
| Basic Course | 2 | 2 |
| Journal Club | 2 | 2 |
| Thesis Seminar | 2 | 3 |
| ***3. Semester:*** | | |
| Practical Seminar | 2 | 3 |
| Journal Club | 2 | 2 |
| Thesis Seminar | 2 | 3 |
| ***4. Semester:*** | | |
| Practical Seminar | 2 | 3 |
| Journal Club | 2 | 2 |
| Thesis Seminar | 2 | 3 |
| ***5. Semester:*** | | |
| Journal Club | 2 | 2 |
| Thesis Seminar | 2 | 3 |
| ***6. Semester:*** | | |
| Journal Club | 2 | 2 |
| Thesis Seminar | 2 | 3 |
| ***Doctoral Thesis*** | | **134** |
| ***Sum*** | ***38*** | ***180*** |

## Doctoral Thesis

**§7.**

(1) The thesis, composed in writing and defended in public, provides the final evidence that the candidate has acquired knowledge and skills to achieve scientific work independently and competently. The candidate produces evidence with her/his thesis of her/his capability of solving an essential scientific problem successfully and increasingly independently as well as of her/his understanding of integrating new results into the frame of the current state of knowledge.

(2) The topic of the thesis shall be extracted from one of the thematic programs (§5), or shall have a meaningful relation with one of them. If a topic is composed in teamwork, the intellectual and experimental contribution of the candidate must be clearly evident for individual evaluation.

(3) The doctoral candidate is entitled to apply for a topic from the suggestions of the available and registered supervisors of the doctoral program. After granted admission to the Doctoral Program (§2) in collaboration with the supervisor, a thesis proposal must be composed which has to be defended in front of the thesis committee and afterwards has to be presented together with the expert opinion of the committee to the curriculum director for approval. The doctoral thesis has to be integrated into a research project approved by a strict expert opinion. If the supervisor does not have such a research project, a project application outlined according to FWF regulations can be submitted to the curriculum director, who then initiates an evaluation procedure with regard to scientific quality, priority and the available resources.

(4) The available project funds or other resources must be sufficient to enable the realization of the thesis with regards to material costs.

(5) The regulations of the copyright law have to be observed for the composition of the topic and the supervision of the doctoral candidates.

(6) All members of the staff of the Medical University of Vienna (§ 94 (1) UG 2002) with a teaching qualification or with an equivalent qualification are entitled to supervise and evaluate a doctoral thesis within the scope of a doctoral program in the field of their teaching qualification provided that in compliance with the regulations the required qualification criteria defined under §5 (5) are fulfilled.

(7) The curriculum director is entitled to assign persons with a teaching qualification at an internationally accepted foreign university or any other domestic or foreign institution equal to a university for the supervision and evaluation of doctoral theses provided that the teaching qualification is equivalent to the teaching qualification pursuant to §7 (6), provided that the qualification criteria defined under §5 (5) are fulfilled.

(8) The curriculum director is entitled to assign to persons without a teaching qualification who in compliance with the requirements fulfill the required qualification criteria defined under §5 (5) the supervision and evaluation of doctoral theses. Postdocs who can be assumed to fulfill the required qualification

criteria defined under §5 (5) with regard to their previous achievements can be assigned as junior supervisors for the supervision of a thesis. However, they shall be supported by experienced supervisors.

(9) The curriculum director shall establish a thesis committee for one or more doctoral candidates at the beginning of their doctoral studies. This committee shall consist of the supervisor and at least two more members, whereas one of these members must not belong to the organizational unit to which the thesis topic is assigned. The members of the thesis committee have to be disclosed to the doctoral candidates immediately after the acceptance of the topic. The thesis committee shall keep watch over the progress of the thesis at regular intervals, at least once a year, and if necessary give an expert opinion or serve as intermediates between the doctoral candidate and supervisor in case of problems.

(10) A thesis completed in accordance with the thesis proposal is to be submitted to the curriculum director. The curriculum director immediately has to entrust two experts with the examination and evaluation of the thesis (one expert being a member of the Medical University of Vienna and the other being an external expert). They have to render their expert opinion within four months of submission at the latest. The supervisor of the thesis cannot take on the function of an expert. If the thesis is not examined and evaluated in due time, the curriculum director has to assign one or two different experts for their opinion and evaluation of the thesis upon request of the doctoral candidate

(11) Within the scope of the doctoral thesis the doctoral candidate shall deal with international scholarly literature, select and apply methodology adequate for the scientific problem supported by the supervisor as well as document the progress of the doctoral thesis and the results in a suitable manner (project book). The thesis has to be composed in English whereas the abstract must be composed in English and German. The composition of the thesis must correspond to scientific work according to the “Vancouver-Guidelines”.

**§8**. Examinations are organized methodically guaranteeing comprehensibility, objectivity, and validity.

(1) Courses within the propedeutics and the basic courses have to be completed by a course examination.

(2) The journal clubs and the thesis seminars are courses with immanent examination character. The evaluation of the doctoral candidates consists not only of one examination at the end of the course but of continuous written and/or oral contributions by the doctoral candidates, as well as of continuous monitoring and controlling of compulsory attendance. Well-founded absences are acceptable within the limits of a tolerable time-frame (standard value 15 % of the total course duration).

(3) For the evaluation of examinations, § 73 (1) UG 2002 shall be applied.

(4) The thesis plan (§7 (3)) composed jointly with the supervisor is to be defended in front of the thesis committee.

(5) Requirements for the admission to the doctoral viva are the successful attendance of all courses, the defense of the thesis proposal, the progress reports in front of the thesis committee and the positive evaluation of the thesis.

(6) The doctoral candidate should produce evidence that at least one paper with her/him as first author has been published or accepted for publication in any internationally renowned, peer-reviewed, journal at the time of the doctoral viva.

(7) In the doctoral viva, the doctoral candidate's comprehensive knowledge is examined by an examination board consisting of a chairperson and two examiners. The examiners are assigned by the curriculum director due to their professional expertise in the thesis topic; however they shall not have a relation to the candidate. The supervisor of the doctoral thesis must not be consulted as a member of the doctoral viva committee. Due to a student's well-grounded application for replacing an examiner, the director of curriculum may assign another examiner instead of a previously nominated one. Within the scope of the doctoral viva it shall be evaluated if the doctoral candidate possesses the ability to apply the acquired knowledge in the field of the respective program topic.

(8) The doctoral viva comprises topics
1. of the thesis, including current knowledge relevant for the respective scientific problem;
2. of the specialist area of the thesis topic.

(9) The doctoral viva is held as a public lecture (defense, "*Defensio dissertationis*") followed by a scientific discussion in which primarily the examination board asks questions but the auditorium may also participate. The examination board has to evaluate the scientific methods of the thesis as well as the specialized knowledge of the doctoral candidate. In well-founded cases (patent process), and at the request of the doctoral candidate or the supervisor,

the curriculum director is entitled to restrict the audience to a small number of qualified persons.

(10) The doctoral viva is to be held in English.

(11) The Doctoral Program of Applied Medical Science has been completed successfully if

1. all courses;
2. the thesis; and
3. the doctoral viva about the thesis topic

have been completed successfully. All are essential components for evaluation. A negative evaluation in one of them cannot be compensated by achievements in the other.

## Transitional Regulations of the Doctoral Programs at the Medical University of Vienna

**§9**

(1) Courses (propedeutics, basic lectures, basis seminars, basis courses, thesis seminars and journal clubs) attended within a doctoral program at the Medical University of Vienna are mutually fully accredited.

(2) In case of switching from the PhD Program (N094) to the Doctoral Program of Applied Medical Science (N790), all accomplishments are fully accredited if the course work required under N094 has been completed and the doctoral thesis has been approved.

(3) In case of switching from the Doctoral Program of Applied Medical Science (N790) to the PhD Program (N094), all accomplishments are fully accredited if the course work required under N790 has been completed, the doctoral thesis has been approved and the following additional requirements are fulfilled:

- Availability of one first author publication by the student in the course of the thesis topic and issued in a “top” journal (ISI ranking);
- Employment contract in the course of a research project for at least one year (without involvement in any clinical routine job).