

Completing the PhD at the Medical University Innsbruck

A. Doctoral thesis

Requirements for submission:

1. *Completion of an independent research project.*

Evidence: At least one publication in an international, peer-reviewed scientific journal, in which the candidate is the first author. The status should be "in press" (accepted for publication). The first-author publication(s) must be the result of the thesis research. If a publication is missing, a statement of the thesis committee must be submitted together with the thesis, which explains why the data of the thesis have not been published yet (see also the form *Record of PhD Thesis Committee Meetings*).

2. *Completion of all required lectures and courses as stipulated in the Studienplan.*

Evidence: Credits (Zeugnisse) from the MUI and/or certificates from other universities and organizations containing the following information about the course: topic, date and duration (hours, if possible ECTS point), grade or other indication of successful completion, name and signature of responsible teacher or course leader, name of organization. A table listing all credits (*credit calculator*) has to be presented with the original certificates.

3. *OK from Thesis Committee.*

Evidence: *Record of PhD Thesis Committee Meetings* with dates of all thesis committee meetings signed by all committee members. In the final meeting, the committee members confirm that all scientific requirements for submission of the thesis have been fulfilled. In addition, the candidate and committee members select and propose suitable candidates for reviewers and examiners.

Selection of reviewers: The doctoral candidate and the advisor propose potential reviewers to the other members of the thesis committee. These check whether the proposed reviewers meet the requirements (see below) and are suitable to assure a competent, critical and objective review of the thesis. After approval of the reviewers by the thesis committee, the candidate or the advisor are encouraged to contact the potential reviewers to find out whether they are willing to review the thesis within the expected time period.

4. *Coordinator's approval:*

The coordinator confirms with his signature on the form *Record of PhD Thesis Committee Meetings* (see below) that all requirements as stipulated in the Studienplan have been fulfilled. Upon submission of the thesis, the VRL selects the reviewers based on the recommendation of the thesis committee and officially invites the reviews.

Structure and contents of the doctoral thesis:

The doctoral thesis may be structured in one of the following two forms:

1. *Monograph* describing the scientific problem and the results of the thesis research with sufficient background and methodological detail to allow a stringent review of the thesis. The sources of data and the contributions to the described experiments of other persons must be clearly referenced.

2. *Cumulative paper thesis*: If the doctoral research resulted in two or more related publications (first authorship paper (see above), plus at least one co-authorship paper), these manuscripts can be included in a paper thesis. The publications are complemented by an in-depth introduction and discussion, detailed experimental procedures, additional results (e.g. negative results and preliminary data). The individual contribution of the candidate to research conducted in a team (multiple author papers) has to be stated in detail for each publication in a brief introductory paragraph.

Review of the doctoral thesis:

Each thesis shall be reviewed by two independent experts.

One scientist familiar with the candidates work (internal reviewer), who can be a member of the thesis committee, but not the advisor. This reviewer must be a member of the respective PhD program or of another PhD program of the Medical University Innsbruck.

One external scientist (from outside the Medical University Innsbruck) experienced in the area of the thesis project. To avoid conflicts of interest, the following must not be true: The PhD candidate has published together with a reviewer (internal or external), and/or the supervisor and a reviewer appear together as first authors, co-first authors, corresponding authors or co-corresponding authors on any paper published within the past five years at the time of the review. The reviewers will assess the importance, novelty, quality and the presentation of the research, as well as the candidate's adherence to scientific and ethical standards, and her/his knowledge of the relevant literature (for details see Instructions for PhD reviewers). Any points of critique will be an issue at the defense (see below).

Resolution of conflicts:

In the case the candidate and the advisor do not agree as to whether the criteria for submission of the thesis have been met, or on the selection of the reviewers, the thesis committee should try to resolve the issue. If this fails, the program coordinator and ultimately the VRL can be addressed to resolve the issue. In addition, the candidate has the right to consult and obtain help from a student representative.

B. Final exam / Defense:

Requirements for taking the final exam / defense:

1. *Completion of all required lectures and courses as stipulated in the Studienplan.*
2. *Completed positive review of the thesis*
(Typically the final exam / defense can be scheduled one week after the thesis reviews were returned to the Studienrektorat.)

Structure of the final exam/defense:

In the PhD study the final exam of the graduate student consists of two parts: (1) the defense of the thesis project and (2) an examination about the program subject (see PhD Studienplan §8). In the clinical PhD study only the defense is required.

The entire final exam is public and held in English (or in German in the clinical PhD). It should be publicly announced well in advance and held at a time and location that allows interested members of the MUI scientific community to participate.

Approximate duration 1 to 1 ½ hours.

Defense: In the *defense* the candidate gives a concise presentation of her/his research project (approximately 20 minutes). The presentation is followed by an open discussion. Here the candidate's ability to defend the conclusions drawn from the experimental work, and her/his overall understanding of the current state-of-the-art in this research field shall be evaluated. Points of critique expressed by the referees of the thesis should be addressed.

Examination of program subject (in the PhD study): This part of the final exam evaluates the candidate's overall knowledge in the field of the Program, and her/his ability to apply this knowledge to current scientific problems. Depending on the Program's internal guidelines, questions can be selected from a catalog (published on the Program home page) and/or from a relevant publication presented to the candidate prior to the exam. In the latter case, the paper presentation should have the elements of a journal club, but take no longer than 10 minutes. (It is advisable to have all figures of the publication prepared in *PowerPoint* presentation and available for possible questions. However, in the presentation the candidate should concentrate on the key experiments and conclusions.) The presentation is followed by questions from the second examiner and the other members of the board. Questions should relate to the publication but not exceed the context of the Program's learning objectives. The audience is encouraged to stay but must not actively participate in the examination.

Examination board (roles and tasks of the members):

The examination board typically consists of a chair person and two members of the Program. Acceptable are, among others, the candidate's advisor and members of the thesis committee, as well as examiners from outside. Where appropriate, the examination board can be complemented by additional members (e.g. referees of the thesis). Each member has her/his specific function (see below), but should actively participate in all parts of the exam.

The **chair person** moderates the final exam/ defense and is responsible for the objective and fair handling. She/he will open the final exam/ defense by introducing the candidate and the members of the examination board, and then briefly reminding the audience of the examination's modalities (duration, roles of examiners, possibility to participate in discussion of defense but not in examination of the program subject). The chair person is welcome to actively participate in the questioning; although, she/he should not extend the scope of the examination beyond topics raised by the examiners. After the final exam/ defense it is the chair person's task to reach an agreement with the examiners on the grades for each part of the final exam/ defense. She/he informs the candidate of the results, completes the examination protocol and returns it to the *Vizerektorat für Lehre und Studienangelegenheiten*.

The **first examiner** should be a specialist in the subject of the doctoral thesis research project. Following the defense she/he asks questions related to the topic (e.g. relating the candidate's work and to the relevant recent literature). Moreover, the first examiner has to address any critical comments raised in the referee's reports that were not addressed explicitly during the candidate's presentation.

In the PhD study the **second examiner's** task is to examine the ability of the candidate to apply the knowledge taught in the program to relevant scientific problems. According

to the program's policies, the examiner either asks questions, or chooses a recent publication related to topics taught in the program's core lectures, but not from the immediate field of the candidate's own research project. In the case the examination of the program subject is conducted as a paper discussion, the selected publication will first be sent out for approval by the other members of the examination board and then given to the candidate three days before the exam. After the brief presentation of the article by the candidate, the examiner will ask specific questions relating to the background and significance of the work, to the experiments, the choice of methods and to the quality of the publication.

Things to do before the final exam / defense:

- o The candidate and advisor send out an announcement/invitation for the defense.
- o The office of the VRL sends copies of the thesis and of the referee's reports to the candidate and the members of the examination board.

C. Grades and certificate:

The final certificate (Abschlusszeugnis) will state the name of the student's PhD program, and it will show the cumulative grade of the thesis reviews, as well as the grades of the defense and the final exam. A candidate passed all requirements for completing the PhD when all parts of the review and final exams are graded positively. If the thesis, the defense, and the examination are all graded with *sehr gut* (1), or if maximally one of the three grades is *gut* (2), the PhD degree can be awarded with distinction (Auszeichnung) by the examination board.

The grades are:

1	<i>sehr gut</i>	excellent	positive
2	<i>gut</i>	good	
3	<i>befriedigend</i>	average	
4	<i>genügend</i>	pass	
5	<i>nicht genügend</i>	failed	negative