

Guidelines for the Preparation of a Dissertation
for Doctoral Degree Programs
at the Medical University of Graz

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Guidelines for the Preparation of a Dissertation

Preamble

In addition to the required formal lectures and the comprehensive oral examination, the dissertation (Latin for discourse, debate) is the most important performance criterion for the graduation process. In contrast to a diploma thesis or master's thesis, which should apply the current state of scientific research to the respective subject, the dissertation is an independent work demonstrating appropriate scientific originality in the relevant subject. In writing a dissertation, the author should demonstrate that he or she is capable of independently examining a scientific problem of current scientific research using the appropriate methods. The results of the research, which should provide significant new insights in the respective subject area, should be discussed in the context of current scientific knowledge. Essential proof of this qualification is the composition of a piece of written work containing a description of the scientific problem under study, its integration in the overall context of the pertinent subject area, as well as a presentation and discussion of the methods to solve the problem and the results obtained. The dissertation must therefore represent an independent original work that the student has prepared and written on his or her own. This shall be confirmed by the student in a statutory declaration for the dissertation. The inclusion of services conducted by third parties (for example in the case of technical assistance in preparation and evaluation of histological tissue sections or analysis of data by biostatisticians) in the dissertation is permitted in justified exceptional cases.

However, third parties (including name and affiliation) need to be acknowledged in the preamble as well as in the results and in respective illustrations of the dissertation.

The student must further confirm that the "Guidelines of the Medical University of Graz on Good Scientific Practice" were observed during the work for the dissertation and the resulting publications.

Guidelines for the Student:

- The student selects a topic. The dissertation topic is to be selected from one of the subject areas of the Medical University of Graz; for Dr. scient. med. and Dr. rer. cur. degree programs it is to be selected from the listing of topics (MUGthesis); for PhD degree programs it is to be selected from the projects announced in a call for tender. It is possible to carry out the work at another university or external institution if

supervised by a member of the Medical University of Graz. The dissertation is to be prepared in accordance with the requirements for structure, organization and linguistic formulations. The dissertation must be written in English. However, the abstract must be provided both in German and in English. The dissertation should be organized as a scientific work; references must be made in the Vancouver or Harvard style.

- The student is obliged to have all the original works that he or she has cited readily available in the form of a literature folder. Similarly, in accordance with the statutory declaration and the rules of the “Guidelines of the Medical University of Graz on Good Scientific Practice”, primary data must be retained for 10 years.
- The dissertation is to be presented in accordance with the requirements of the curriculum as well as the “Checklist for Students and Supervisors” and the “Guidelines for the Preparation of a Dissertation”
- The completed dissertation is to be submitted via the Dean of Doctoral Studies to the Dean of study affairs.

Guidelines for the Supervisor:

- The principal supervisor of a dissertation must be a qualified university teacher who is a member of the Medical University of Graz. If it appears reasonable or appropriate, another member of the university or a qualified university teacher from another university may be appointed as a co-supervisor for the dissertation in accordance with § 45 (4) of the part of the university’s statute on study law.
- The principal supervisor shall announce the topic in the listing of topics (MUGthesis), or for PhD degree programs in the call for tender. The scope is to be chosen such that it is possible and reasonable to conduct and complete the dissertation work within 6 semesters.
- During the time that the dissertation is being completed, the dissertation committee must be available for expert support, discussion and consultation.
- The principal supervisor is obliged to draw the student’s attention to the rules of correct referencing, to copyright laws and to the issue of plagiarism. She/he is also expected to guarantee that the rules of the “Guidelines of the Medical University of Graz on Good Scientific Practice” are fulfilled.

- Prior to submission of the thesis, the supervisor has to make sure that the dissertation has been written in accordance with the requirements of the “Checklist for Students and Supervisors” and the “Guidelines for the Preparation of a Dissertation”.

Guidelines for Approbation:

- The approbation of the dissertation shall be carried out in accordance with the requirements of the respective curriculum.
- Prior to submitting the dissertation to the reviewers, the Dean of Doctoral Studies conducts a formal review of the dissertation based on the requirements of the “Checklist for Students and Supervisors” and the “Guidelines for the Preparation of a Dissertation”.
- The Dean of study affairs shall appoint two reviewers. The review process is to be carried out within a period of maximum two months.
- The dissertation will be published on the Internet in PDF/A format. In justified instances (e.g. legal patent aspects, the intent to publish substantial parts of the dissertation in journals with embargo regulations) a request to postpone publication for a maximum of 5 years may be submitted to the Dean of study affairs (see “Checklist for Students and Supervisors”).

Preparing a Dissertation

Dissertation Agreement

As part of the approval process, a dissertation agreement must be submitted. The corresponding forms in the current version are available on the website of the respective Medical University of Graz degree programs and include:

- o Dissertation Title
- o Institute, Division, Research Center, Clinical Division or Clinical Department
- o Doctoral School or PhD Program
- o Required resources
- o Requirement for approval by the Ethics Committee or the Animal Testing Commission
- o Members of the Dissertation Committee
- o Approval of the Director of the Institute, Division, Clinical Division or Clinical Department
- o Approval of the Head of Doctoral School or PhD Program

Presentation of the Dissertation Topic before the Dissertation Committee

The presentation of the dissertation topic, the work plan and a written summary are to be submitted to the Dean of Doctoral Studies during the first semester. These include the following information:

- Dissertation Title
- Doctoral School or PhD Program
- Background and Objective
 - What is the research question?*
 - Why is this research question important, why is it original, what is its potential for innovation?*
 - What results in general are to be expected?*
- Choice of Methods
 - Which methods are available to tackle the research question?*
 - Why exactly was this method chosen?*
- Work Plan and Schedule
- Collaborations

- Milestones
- Signatures of the members of the Dissertation Committee

Two Interim Reports for the Dissertation

Organization according to the respective forms in the current version

Originality, Copyright and Plagiarism

Plagiarism is defined as using another person's texts, images, data or hypotheses, interpretations and theories, without citing the original source in a clearly identifiable manner. Texts and images, even with correct mention of source, can also be considered to be plagiarized, when for example a verbatim quotation is used without there being quotation marks around the quoted text, or when an image is used without explicit reference to it being a reproduction.

Ideally, the dissertation is solely the work of the candidate, both with regard to conception as well as implementation, produced under guidance of the supervisor. Any contributions originating from persons other than the candidate must be referenced at all instances mentioned in the manuscript and also in the disclosures. However, it has to be considered that such contributions from others may appear to be major citations and could therefore diminish the originality of the dissertation and may also negatively influence the evaluation of the thesis. Purely technical contributions, such as any routinely produced histological sections, or when protocols and reagents have been made available by other persons, must also be referenced. Any work carried out in laboratories of research institutions other than that of the supervisor, for example in connection with time spent abroad, has to be acknowledged as such.

The copyright of third persons must be respected even when the source has been cited correctly. For example, the use of images from other sources is only allowed after prior permission by the copyright owner (usually the publisher). That this permission has been granted must be mentioned in the source reference. That also applies when the image has been modified. In this case it must also be mentioned that the original has been modified, and the author's permission for the modification must have been obtained. Here too, it is worth considering whether such major citations are useful for the dissertation as they might put the originality of the dissertation into question.

The copyright of publishers and co-authors must be acknowledged, even when results or sections of texts or images from one's own publications are re-used in the dissertation. Here too, permission must be sought from the copyright holder. It must be remembered that even in a so-called open-access article published in a hybrid journal, the copyright is with the journal and in this case, permission has to be requested separately. To prevent being accused of auto-plagiarism it should be mentioned in the publication that the results will be part of a dissertation, just as the publication must be cited in the dissertation. If applicable, it should be mentioned in the dissertation that all or parts of the published work is being reproduced identically. Inclusion of the publication in the dissertation, for instance as PDF in the Appendix, may make good sense, but can only be done with express permission of the publisher. Co-authors of these publications have to agree in particular with the reproduction of data and images in the dissertation, of which they have explicit copyright, and their contributions must be identified accordingly. Sections of text and images, which resulted from collaboration of several authors, should not be used in the dissertation, but should be newly configured by the candidate. Compliance with these regulations can be checked based on the "Checklist for Students and Supervisors" prior submitting the dissertation.

Evaluation Criteria for the Dissertation

- Relevance of the topic, originality, coherence and scientific maturity of the work
- Extent of work adequate for a PhD thesis; if done in collaboration, adequacy of the share of the candidate in performing the study
- Introduction – thorough understanding of state of the art and gaps in knowledge, appropriate development of hypotheses
- Study design – adequacy relative to the hypotheses tested and the methods and statistics chosen
- Methods – adequacy and accuracy allowing to reproduce the study
- Statistical analysis
- Results – adequacy and accuracy of textual and graphical presentation and statistical evaluation
- Discussion – interpretation and critical assessment of results within a broader scientific context
- Conclusions and claims – adequate support by data
- Contribution to knowledge and advancement in the field under study

- Bibliography – format (Vancouver or Harvard style) and completeness
- Particular strengths
- Particular weaknesses

In addition, it will be evaluated whether there are concerns about the contribution of the candidate to the work and/or appropriate acknowledgment of other contributions, whether there are concerns regarding the plagiarism report, and whether there are ethical concerns (e.g. approval by appropriate committees and adherence to rules of good scientific practice).

Format and Organization Guidelines for the Dissertation

Format of the Dissertation

- o Portrait layout, DIN A4
- o Printed on one side only
- o Margins: left and right 2.5 cm, top and bottom 3 cm
- o The text should be written with a line spacing of 1.5 in a standard font, e.g. Times New Roman 12pt., Arial 11pt. and 14 pt or 16 pt for headings
- o Language: English
- o Abstract and Title in German and English
- o Number of pages: As a rule, approximately 60-80 pages (not including foreword, disclosures, acknowledgements, table of contents, list of abbreviations, illustrations, figures, tables, list of references and appendix)
- o Citation style: Vancouver or Harvard style
- o An electronic version of the dissertation in PDF/A format must be submitted for evaluation and publication on the Internet.

Title Page

In accordance with ÖNORM A262, the title page should include the following information (examples in German and English can be found in the appendix):

- o Title of the Dissertation
- o Name of the author (with emphasis of the surname)
- o Name of Institute/Research Center/Division/Clinical Division/Clinical Department

- o Type of text (“Dissertation submitted for the Degree of Doctor of Medical Science / Nursing Science / Philosophy (Dr. scient. med. / Dr. rer. cur. / PhD) at the Medical University of Graz”)
- o Name of the supervisor(s)
- o Year of submission

Statutory Declaration

The statutory declaration serves as proof of the independent work and scientific integrity of the PhD student regarding the rights of authors and copyright law.

Example:

“Declaration

I hereby declare that this thesis is my own original work and that I have fully acknowledged by name all of those individuals and organisations that have contributed to the research for this thesis. Due acknowledgement has been made in the text to all other material used. Throughout this thesis and in all related publications I followed the “Guidelines of the Medical University of Graz on Good Scientific Practice”.

Date....”.

Disclosures

All publications that are based on the thesis including co-authors and their respective affiliation need to be listed as a full citation. Furthermore, it has to be confirmed that (a) all co-authors have agreed to the inclusion of their published data in the dissertation and that (b) permission to reproduce illustrations and figures from own or third-party publications has been granted. These permissions together with the source need to be mentioned in the appropriate figure legends.

Acknowledgements

The PhD Program or the Doctoral School in which the doctoral thesis was conducted needs to be mentioned and financial support by the Medical University of Graz or third parties needs to be acknowledged.

Organization of the Dissertation

The organization of the dissertation should essentially be structured following the Vancouver or Harvard Convention for the preparation of scientific papers:

1. Title page (see sample)
2. Statutory Declaration
3. Disclosures
4. Foreword (optional)
5. Acknowledgements
6. Table of Contents
7. Abbreviations and Definitions
8. List of Figures (optional)
9. List of Tables (optional)
10. Abstract in German (1 page)
11. Abstract in English (1 page)
12. Introduction (15-25 pages)
 - a. Summary of the recent state of knowledge: Special focus is to be paid to scientific depth. Textbook knowledge should not be repeated at this point. In addition, illustrations from third party works are not to be used. The Introduction should be designed as a scientific review article giving an overview on the topic (and may also be published as such).
 - b. Justification of the research question, aim of the dissertation, hypotheses, novelty value and limitations of the research topic
13. Material and Methods: Methods and protocols are to be described as accurately as possible, enabling others to reproduce the work. However, the work flow of standard methods (ELISA, flow cytometry etc.) does not require any detailed explanation or illustration. Nevertheless, a reference to appropriate literature may be in place.
14. Results - Findings
15. Discussion (10-20 pages): Answers to research questions, presentation of novelty value and comparative explanations, conclusions, critical reflection on the content

and methods, implications for theory and practice, outlook and suggestions for further work.

16. Bibliography

17. Appendix (technical documentation of the methods and techniques important for the implementation of the dissertation, e.g. list of reagents and equipment, questionnaires, study protocols, measurement protocols, case report forms, medical history forms, publications resulting from the dissertation, etc.

Cumulative Dissertation

The submission of a cumulative dissertation is possible in particular and justified cases but only after consultation with the Dean of Doctoral Studies. In such a case only first author publications of students who were solely responsible for the writing of these papers may be included in the dissertation. This is to be confirmed in writing by the supervisor. The papers need to be closely linked to the topic of the dissertation and the contribution of all co-authors needs to be detailed in the disclosures. In order to be able to submit a cumulative dissertation, at least three original publications in a SCI-listed journal need to be presented. One original paper may be substituted by a review article in a SCI-listed journal. All publications need the approval of the respective publisher and the copyright holder for reproduction in toto. In addition, a letter of consent from all co-authors needs to be presented. A joint introduction and discussion of all presented works is to be included in appropriate length (see *Organization of the Dissertation*).

Effective Date

With the publication of this document, all previously published guidelines for the preparation of a dissertation are no longer valid.

Appendix

Dissertation

{ TITLE }

submitted by

{Dr.med.univ./dent. /Mag.rer.nat. ...}

{Forename SURNAME}

for the Academic Degree of

Doctor of Medical Science / Nursing Science / Philosophy

(Dr. scient. med. / Dr. rer. cur. / PhD)

at the

Medical University of Graz

Institute / Department of ...

under the Supervision of

{Prof. Dr. Forename SURNAME}

{Year of Submission}