

Guidelines for the preparation of a **Publication-based / Cumulative Dissertation** at the Faculty of Medicine at Heinrich Heine University Düsseldorf

To the Doctoral Regulations (PO) of the Faculty of Medicine at HHU Düsseldorf
Dr.med. / Dr.med.dent. / Dr. Public Health / PhD in Medical Sciences

As of June 2020

Introductory Remarks

Different format requirements apply for dissertations written as a monograph and for publication-based dissertations (see § 8 (4) of the PO, separate guidelines). The mandatory format template can be found in the PO in appendix 2. It is also available at: www.medizin.hhu.de/abgabe-doktorarbeit.

A dissertation must be prepared according to the generally applicable criteria for the writing of a scientific paper. The following explanations are intended to help you with this.

Please note that your dissertation will be evaluated based on the version you submit with your application for admission to doctoral examination proceedings. No corrections can be made after submission of the dissertation. Deficiencies in content and form will be taken into account for the grading.

Table of Contents

| | |
|---|---|
| 1 General Information..... | 3 |
| 1.1 Requirements | 3 |
| 1.2 Format, Extent, Font and Typesetting | 3 |
| 1.3 General Outline | 4 |
| 1.4 Page numbering..... | 4 |
| 1.5 Figures and Tables | 4 |
| 1.6 Footnotes..... | 5 |
| 1.7 Referencing and Citations | 5 |
| 1.8 Thesis Submission for Examination and Review..... | 6 |
| 1.9 Publication of Thesis (PO §14)..... | 6 |
| 1.10 Plagiarism | 7 |

| | |
|--|----|
| 2 Structure and Contents of Publication-based Dissertation | 8 |
| 2.1 Title page..... | 8 |
| 2.2 Page 2..... | 8 |
| 2.3 Page 3..... | 8 |
| 2.4 Page 4..... | 8 |
| 2.5 Summary (German and English)..... | 8 |
| 2.6 List of abbreviations | 9 |
| 2.7 Table of contents..... | 9 |
| 2.8 Introduction..... | 10 |
| 2.9 Material and Methods; Results..... | 11 |
| 2.10 Published original articles | 11 |
| 2.11 Discussion and Conclusions..... | 11 |
| 2.12 Reference list / Bibliography | 11 |
| 2.13 Appendix..... | 11 |
| 2.14 Acknowledgements..... | 11 |
| 2.15 Affidavit | 11 |

1 General Information

1.1 Requirements

A publication-based or cumulative dissertation is submitted in the form of already published articles / articles accepted for publication. The following conditions must be met (§ 8 (4)):

Dr.med. / Dr.med.dent. / Dr. Public Health: at least one publication with at least one unshared first authorship. The original article must have been published or accepted for publication in an internationally recognised journal listed in PubMed or ISI Web of Knowledge that has a peer review procedure. Submission of a publication-based thesis with only one shared first authorship is not possible.

PhD in Medical Sciences: at least three publications with at least two unshared first authorships. The original articles must have been published or accepted for publication in an internationally recognised journal listed in PubMed or ISI Web of Knowledge that has a peer review procedure.

In the case of a publication-based dissertation, the doctoral candidate must independently ensure that all authors are informed about the use of the manuscript as a publication-based dissertation and that no copyright infringement occurs through the use of the manuscript(s).

The doctoral candidate (first author) has written the publication(s) him/herself. (This must be stated in the "Statement on contribution to thesis". The document can be downloaded at: www.medizin.hhu.de/abgabe-doktorarbeit.)

Evaluation and grading applies in accordance with the doctoral regulations. In the following guidelines, the original papers are referred to in the plural, even if there is only one publication.

1.2 Format, Extent, Font and Typesetting

A publication-based dissertation comprises the chapters Introduction (including a subchapter *Aims of thesis*), Discussion and Summary. The parts Material and Methods and Results are replaced by the publications. Additional methods, results or details not mentioned in the publication can be included in the publication-based dissertation. The dissertation is printed single-sided in DIN A4 format. All parts of the original publications must be copied to DIN A4 format regardless of the print format and included in the reviewers' copies.

The left margin should be 3 to 3.5 cm wide because of the binding. The right margin, upper and lower margins should be 2 to 2.5 cm wide. The use of common fonts is strongly suggested, e.g. Times New Roman, Arial, Helvetica. You can also use a combination of different fonts: e.g. for the body text an easily readable serif font (e.g. Times New Roman) and for the headlines and illustrations a sans serif font (e.g. Arial). Do not use decorative fonts.

The font size of the continuous text is 11 to 12 point with max. 1.5-fold line spacing. Larger fonts up to 20 points can also be used for headings. The continuous text can be set either as justified text or left-justified. The legends of the illustrations and tables are slightly smaller than the continuous text and have a font size of 10 points. The first line of each paragraph can be indented.

Foreign language terms do not necessarily have to be translated. However, they must be marked in italics (e.g. *in vitro*).

1.3 General Outline

The thesis is structured as follows:

- Title page
- Page 2 (Examiner details) - You will be notified of the exact text for page 2, once print approval is granted.
- Page 3 (Dedication, if applicable)
- Summary (German)
- Summary (English)
- List of abbreviations
- Table of contents
- Introduction (including a subchapter *Aims of Thesis*)
- Published original articles
- Discussion (including *Conclusion*)
- Reference list/Bibliography
- Appendix
- Acknowledgements

1.4 Page numbering

The following pages are not given a number:

- Title page
- Page 2 (Examiner details)
- Page 3 (Dedication, if applicable)

The following sections are numbered consecutively with Roman numerals (I, II, III, IV, etc.):

- Summary (German)
- Summary (English)
- List of abbreviations
- Table of contents

Then, the first page of the introduction starts with 1. All following pages are numbered consecutively using Arabic numbers. The publications count only as single pages, regardless of their extent:

- Introduction (including a subchapter *Aims of Thesis*)
- Published original articles
- Discussion (including *Conclusion*)
- Reference list/Bibliography
- Appendix

The following pages are not numbered:

- Acknowledgements, if applicable

1.5 Figures and Tables

The sections *Summary* and *Introduction* should not contain figures and tables from the publications. An explanatory figure may be inserted in the discussion and conclusions. Refrain from repeated insertion of figures with data taken from the publication.

Figures and tables are numbered consecutively. They should be positioned at the appropriate place in the text. They do not belong in the appendix or on pages with figures without text reference. All illustrations are mentioned and explained in the text (e.g. Fig.1). They are provided with a title and a legend or caption. The title is printed bold. Figures and tables must be self-explanatory in conjunction with the legend.

The legend is placed below the figure and begins with: "Fig. x:...". (The word figure is abbreviated.). This is followed by the title of the illustration and further information. All units of measurement (cm, kg etc.) and abbreviations used must be listed or explained in the legend.

Tables are used to clearly present extensive data material. The meaning of the individual rows and columns must be made clear to the reader. Like the figures, tables are numbered sequentially as follows: "Table 1:...". The word table is not abbreviated. This is followed by the name of the table (table heading, bold) and information necessary for its understanding. The legend of the table is placed below the table. Tables, like figures, are inserted at the appropriate places in the text

All symbols or abbreviations that are not self-explanatory must be explained in a legend. It is important to ensure uniform handling throughout the document. Table headings and legends are usually formatted in smaller size (10 - 11 point) than the body text. For (electron) microscopic images, the scale and magnification must be given.

Copyright information: For all illustrations and tables that you have not created yourself, but have taken over or modified from other sources, a source reference, analogous to the citation of text sources, must be given in the caption. The source reference must be included in the reference list/bibliography.

Please note, especially in view of the fact that your dissertation will be published online, that the reproduction of other illustrations and tables is subject to copyright. In order not to risk a warning for unauthorised use of pictures, graphics or photographs, you should always ask the responsible publisher for permission. This also applies to illustrations from publications in which you are listed as the author, as the reproduction rights are usually transferred to the publisher. However, most publishers allow the re-use of parts of your own publications. In the case of journals, this is usually stipulated in a contract. Therefore, please refer to the websites of the respective publishers for information on author rights and licenses. The granting of a licence by a publisher may also be subject to fees.

In case of doubt, you should remove copyrighted images from your dissertation or replace them with images whose legal status has been clarified.

1.6 Footnotes

Footnotes should be avoided (some exceptions may apply, e.g. in the field of History of Medicine).

1.7 Referencing and Citations

All sources referred to in the text must be mentioned in your bibliography or list of references. This includes own publications that are related to the present dissertation as well as all sources from which figures and tables were taken directly or modified. Do not list manuscripts in submission/in revision here. These belong into the "Application for authorization to the doctorate" (*Zulassungsantrag*).

Vice versa, the bibliography should only contain sources that are referred to in the text. The reader must be able to find the original publication based on the information in the bibliography. The use of a citation program to create the bibliography is strongly suggested (e.g. Zotero, Endnote).

The way of citing must be consistent, logical and comprehensible within the document. Use either the Name-year system (Harvard system) or the Number reference system (Vancouver system). In the Vancouver system, a number is added in parentheses or square brackets in the appropriate place in the text, starting the numbering from 1. The first source used is given the number 1, the second the number 2, and so on. If a source is cited twice, it retains the original number. The sources are then listed in the bibliography in the order in which they appear. In the Harvard system, the sources are listed in the text with the author's surname and the publication year in brackets: (Messmer, 1990), (Otto and Herfarth, 1991), when there are more than two authors (Otto et al., 1992). In the bibliography, the sources are listed in alphabetical order.

Direct quotations must always be placed in quotation marks.

Only reference material that allows a reader to track down the original source should be cited. This includes publications from listed journals (Pubmed, ISI Web of Knowledge), published books, dissertations and abstracts published in listed journals. Not citable are: unpublished abstracts/posters, e-mails, oral communications etc.

Please avoid quoting Internet pages. If this cannot be avoided, please state the exact date of access in the list of sources in addition to the complete URL and document/print out the website for your records.

1.8 Thesis Submission for Examination and Review

When you submit the application for admission to doctoral studies, you upload your dissertation electronically as a pdf file using the online admission form. If a reviewer would like to receive a printed version, please submit it on request.

1.9 Publication of Thesis (PO §14)

The dissertation must be published within a year of passing the oral doctoral examination (§ 14 (4) of PO). The supervisor gives his/her consent to the printing of the dissertation on the revision note (Appendix 3 of PO). There are two different possibilities for the publication of the dissertation at the University and State Library (ULB) (§ 14 (5) and (6) of PO):

In addition to an electronic version, two printed copies are submitted to the ULB. These must be printed on age-resistant acid-free paper (groundwood-free paper) and be permanently bound.

In exceptional cases, the Dean may permit publication without an electronic version after written explanation. In this case, please contact the University and State Library of Düsseldorf for specifics regarding this form of publication.

Documents placed in the document server may not violate the applicable German copyright law and may not be changed subsequently. This means that you, as the author, either own all rights of publication, use, distribution, duplication and public reproduction or that the rights of use must be obtained from the author. Otherwise, you may be subject to high and long-term royalties. (You can download the legal information here: <http://www.gesetze-im-internet.de/urhg/index.html>).

For copyright reasons, in the case of publication-based dissertations, the published original papers are removed from the copies for the ULB and replaced by a single page on which the publication with the bibliographic data is indicated.

1.10 Plagiarism

Plagiarism is deemed to exist if "[...] texts of third parties are copied in whole or in part, literally or almost literally, and passed off as one's own scientific achievement. Such a procedure not only contradicts good scientific practice, it is also a form of intellectual theft and thus a violation of copyright law." (Translated from: Grundaussagen des DHV zur Sicherung guter wissenschaftlicher Praxis in der Gemeinschaft von Lehrenden und Lernenden, Resolution des Deutschen Hochschulverbandes vom 17. Juli 2002; <https://www.hochschulverband.de/fileadmin/redaktion/download/pdf/resolutionen/plagiate.pdf>)

If content has been copied from books, magazines, Internet pages or radio contributions without information about the source, it is considered plagiarism. It is irrelevant how extensive the plagiarism is or whether the relevant passages were taken over literally or paraphrased or translated from another language. Adoptions from own publications must be marked. In the case of verbatim copies from your own publications, this must also be marked. It is not sufficient to indicate the source of the text alone.

This is also laid down in § 4 of the Rules on the Principles for Safeguarding Good Scientific Practice at Heinrich Heine University Düsseldorf, dated 19 February 2014.

2 Structure and Contents of Publication-based Dissertation

2.1 Title page

Please design the title page according to Appendix 2 of the PO. This can be found here: www.medizin.hhu.de/abgabe-doktorarbeit. You can choose the font and font size, but the content must comply with the requirements of the doctoral regulations.

2.2 Page 2

On page 2, the examiners of your dissertation are listed. Page 2 will not be included in the examination copies, but will only be inserted in the copies for publication after the review process and the oral examination. Please design page 2 according to Appendix 2 of the PO. This can be found here: www.medizin.hhu.de/abgabe-doktorarbeit.

2.3 Page 3

On this page, you can add a dedication or a quote in German or English.

2.4 Page 4

Here, the own publication(s) is/are listed, which is/are the basis of the publication-based dissertation. If data from other own publications are included in the thesis (e.g. in the overarching text), these are also listed on p. 4. Submitted manuscripts / manuscripts under revision are not listed here. These will be listed in the "Application for authorization to the doctorate" (*Zulassungsantrag*).

Please design page 4 according to Appendix 2 of the PO. This can be found here: www.medizin.hhu.de/abgabe-doktorarbeit.

Please note that you must include a reference for all information you take from your own publications. The publications mentioned on page 4 must therefore also be listed in the bibliography (see Section 1.7 Referencing and Citations). Direct quotations must be marked with quotation marks.

2.5 Summary (German and English)

The German and English summary should be exactly one page long each and should include the following contents in a shortened form: the scientific background and current state of research, research question and objectives, methodology, results, discussion and conclusions. The summary represents a coherent text. Please **do not use** subheadings.

The summary is needed twice:

- a) Bound into your dissertation.
- b) As a pdf-document, submitted together with the application for admission to doctoral examination proceedings.

2.6 List of abbreviations

The list of abbreviations contains and explains all abbreviations used in the thesis (except for common linguistic abbreviations as defined in the dictionary, e.g. *Duden*, Merriam-Webster). In the case of physical or chemical quantities, it is also necessary to specify the unit. An alphabetical order is useful, a subdivision (e.g. SI units, own abbreviations) is possible. For example, you can format the page in two columns, the abbreviations in bold and the corresponding explanations in non-bold.

Example:

List of abbreviations

| | | | |
|--------------|--|--------------|---|
| AA | Arachidonsäure | GFP | <i>green fluorescent protein</i> |
| AID | autoinhibitorische Domäne | InsP3 | Inositol-1,4,5-trisphosphat |
| BAPTA | 1,2-bis(2-aminophenoxy) ethan N,N,N',N'-tetraacetat | IPTG | Isopropyl- β - Dthiogalactopyranosid |
| BHQ | 2,5-di-(t-butyl)-1,4- hydrochinon | kb | Kilobasen |
| BSA | Rinderserumalbumin | kDa | Kilodalton |
| CaM | Calmodulin | LPC | Lysophosphatidylcholin |
| DIF | <i>differentiation inducing factor</i> | ODx | optische Dichte bei der Wellenlänge x nm |
| dNTP | Desoxyribonukleotide | SDS | Natriumdodecylsulfat |
| DTT | Dithiothreitol | TBS | <i>Tris buffered saline</i> |
| EDTA | Ethylendinitrilotetraessigsäure | Tm | Schmelztemperatur |
| EGTA | Ethylendioxybis(ethylenitrilo) -tetraessigsäure | U | Units |
| | | U/min | Umdrehungen pro min |

2.7 Table of contents

The page numbers in the table of contents refer to the consecutive numbering of the thesis. Your publications will be inserted as separate chapters. Only the title page of each publication is given a consecutive page number of the thesis. The publication parts (summary, introduction, methodology, results, discussion, bibliography) are not listed separately in the table of contents. The published original papers are listed in the table of contents with their complete reference.

The table of contents lists the chapter headings with the corresponding pages. If a chapter is subdivided, the chapter must contain at least two subchapters. A chapter with only one subchapter is not allowed.

A common form of layout is decimal notation with bullet points up to three digits (e.g. 1.3.6). No full stop is placed after the last digit. The page numbers are only given with corresponding numbers, without addition. Therefore not: S.1 or S.1-3 (see example below). The first actual text page (introduction) is counted as "Page 1". If possible, the entire table of contents should not be longer than 2 pages. For reasons of clarity, the reference of the published articles will be ordered as follows: title, authors, journal, volume, number, pages, year (Thus, the citation does not follow the rules of the *Reference List/Bibliography*). Other, previously unpublished material can be presented in separate chapters.

Example:

Table of contents

| | | |
|-----|--|----|
| 1 | Introduction | |
| 1.1 | Caption..... | 1 |
| 1.2 | Caption..... | 2 |
| 1.3 | Caption..... | 5 |
| 1.3 | Ethical clearance and reference for animal testing..... | 7 |
| 1.4 | Aims of thesis..... | 8 |
| 2 | Title of publication, Mustermann, M., Meier, R., Schulze, A., Schmidt, R., Journal, Volume: Page-Page, (2010) | 10 |
| 3 | Title of publication, Mustermann, M., Meier, R., Schulze, A., Schmidt, R., Journal, Volume: Page-Page, (2011) | 11 |
| 4 | Discussion..... | 12 |
| 5 | Reference list / Bibliography..... | 25 |
| 6 | Appendix..... | 27 |

2.8 Introduction

The introduction is of great importance for the review of a dissertation based on publications. It must make it clear in which overriding scientific question the publications are embedded, e.g. in what way the work is embedded in the research projects of the supervisor's working group. In the case of several publications, it must be worked out which content-related connections exist between them.

The introduction begins with an overview of the topic. This is followed by further introductory remarks, which describe the scientific background of the work as precisely as possible. Cite the most important publications and avoid extensive literature reviews. At the end, add a subchapter on the *Aims of Thesis* in which you describe the research question and the objectives of your work on a maximum of two pages.

The reference number of the Ethics Committee / the reference number of LANUV will be listed in the *Introduction* as well.

2.9 Material and Methods; Results

The chapter *Materials and Methods* and the chapter *Results* are replaced by the original publication(s) (§ 8 (4) PO).

2.10 Published original articles

All parts of the original publications must be copied to DIN A4 format regardless of the print format of the journal.

2.11 Discussion and Conclusions

In the discussion, a critical evaluation of your own results is made against the background of the literature. At this point, further results that have not already been listed in the results section can also be discussed. In particular, it should be shown here how the publications and, if applicable, the additional results in their entirety contribute to answering the research question.

2.12 Reference list / Bibliography

The cited publications are listed in the bibliography. See also Section 1.7 References and citations.

2.13 Appendix

The appendix contains:

- any existing survey materials, e.g. questionnaires
- detailed description of formulas and derivations

Please do not include signed documents (e.g. the vote of the Ethics Committee).

2.14 Acknowledgements

An acknowledgement can be inserted on this page.

2.15 Affidavit

The affidavit is signed in the “Application for authorization to the doctorate” (*Zulassungsantrag*). According to the PO, the affidavit is no longer inserted in the dissertation itself.