

Guidelines and recommendations for writing the Master's thesis

General information

- BSc and MSc theses follow the same scheme and differ only in size
- Font 12 pt Times or 11 pt Arial/Helvetica, line spacing 1.5 lines
- DIN A4; 2.5 cm space from all margins; additionally at least 1 cm for binding the paper
- Guideline for BSc theses approx. 30-50 pages
- Guideline for MSc thesis approx. 50-70 pages
- Bibliography/references should contain the titles of the papers as well as the start and end page numbers. A format common in the biological and life sciences literature should be chosen.
- Literal quotations are unusual in the biological life sciences and should be avoided as far as possible.
- BSc and MSc theses can be written in German or English
- The abstract must be written in both German and English
- For prescribed chapters, see next point, thesis structure; possible additional sections (also beyond the examples listed) in consultation with the thesis supervisor

Structure of the thesis

Prescribed chapters

- Cover sheet (with title of the thesis; name of the student; names of the reviewers; date of submission)
- Affidavit (that the thesis was written independently and that no sources and aids other than those specified were used; period in which the thesis was written)
- Acknowledgments
- Table of contents
- Executive Summary
- Introduction
- Task / Objective
- Material and methods
- Results of the study
- Discussion of the results
- Bibliography

Possible further sections

- Curriculum vitae
- List of figures

- List of tables
- List of abbreviations
- Outlook
- Appendix
- If necessary, further/other in consultation with the thesis supervisor

Notes on individual chapters

Summary

- No subchapters
- Maximum one page, no references
- 2-3 sentences on the scientific background
- 1-2 sentences on the central research question
- 1-2 sentences on the methodological approach
- 4-5 sentences summarizing the most important results
- 2-3 sentences on the scientific significance
- If applicable, 2-3 sentences on further implications (e.g. application potential, medical significance)
- No abbreviations should be used in the summary. Only exception: very complex protein names or method names (abbreviation after the first use of the term in brackets)

Introduction

- Usually with subchapters
- Flow from more general to more specific aspects
- "Red thread" - should clearly lead to the question being addressed
- The introduction should take into account the current literature. If publications that have appeared during the time of writing directly affect your own work (duplicate, make an approach obsolete), the state of knowledge at the beginning of the work can be presented as an exception (clarification "At the beginning of this work ..."). The current state of affairs should then be taken up in the discussion.
- All statements that go beyond standard textbook knowledge must be referenced.
- Abbreviations should appear in brackets after the expression the first time they are used. Introduced abbreviations should be used throughout. Abbreviations should only be used at least three times.
- Foreign-language expressions should be printed in italics. When writing in German, a German translation should be chosen the first time an English expression is used, and the English expression should then be introduced in brackets (including its abbreviation, if applicable).

Task / Objective

- No subchapters
- Concrete designation of the specific objectives of the work (if necessary with a short justification, which should also be evident from the introduction)
- This section should NOT be a summary of the results

Material and methods

- With subchapters
- All experimental approaches must be presented in sufficient detail to allow independent reproduction of the experiments by an appropriately trained person.
- Methods that have already been published should not be described in detail, but reference should be made to the relevant references.
- If the selected methodological approaches differ from published methods only in some detailed aspects, reference should also be made to the published methods. Subsequently, only the deviations in the approaches should be described (“... was carried out as described in [reference] with the following changes: ...”)

Results

- With subchapters
- Pay attention to the logical flow of the presentation. The presentation of the results in the paper can (and normally will) deviate from the chronological sequence of the experiments.
- 1-2 short introductory sentences for each section in the results (Why / With what aim / Against what background were the following experiments carried out?)
- 1-2 short summarizing remarks at the end of each results section (“In summary, these data show that ...”).
- Secondary aspects can already be discussed in the results section (max. 1-2 sentences).
- No exhaustive discussion of the main results in the results section.

Discussion

- Normally with sub-chapters
- Only a brief summary of the results should be given at the beginning of the discussion or at the beginning of each discussion chapter. No comprehensive repetition of the results section.
- Thematic sequence in reverse order to the introduction (from specific to more general aspects/implications).

- As part of the discussion, the chosen experimental approaches and the quality / significance of the data collected should be critically examined. Discuss problems with the experimental procedures.
- The discussion should include references to possible further work or alternative experimental approaches that could clarify an unanswered question. If necessary, in a separate chapter (“Outlook”).
- The discussion should take into account the current state of knowledge and include work published during the BSc/MSc thesis.

Figures

- Guideline: One figure per results section
- Figures should not be redundant with data in tabular form (and vice versa).
- An ideal figure is understandable on its own (i.e. even without the legend) - provide full labeling.
- All axes must be labeled (size and unit) for corresponding graphics.
- The labels must be large enough to be easily legible.
- The font sizes of the labels within a figure should not differ greatly from one another.
- Lines must have sufficient thickness to be clearly recognizable.
- Colors used should be easily distinguishable from one another.
- In different figures, the same elements (e.g. the same parts of a structure, the same cell compartment) should have the same color.
- The figure should be fully described in the legend.
- All abbreviations used in labels should be explained in the legend.
- The meaning of error bars, statistical parameters etc. should be described in the legend.
- The legend should include the number of independently performed experiments, if applicable.

Good scientific practice

- The writing of scientific papers is part of the scientific process and, like all other aspects of scientific work, is subject to the rules of good scientific practice. See e.g. http://www.dfg.de/foerderung/rechtliche_rahmenbedingungen/gwp/index.html
- When writing theses, this includes in particular correct citation and the strict avoidance of unmarked verbatim copying of formulations from other sources (including the Internet).
- The citations used must contain the stated facts. The work that is the first to describe a particular issue must be cited. All works that have contributed to the facts presented must be cited. In exceptional cases, reference may be made to review articles.