



TECHNISCHE UNIVERSITÄT
ILMENAU

How to Write a Thesis: Guidelines for Writing a Graduation Work

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June 5, 2024

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1 Introduction

This is a working guide on writing a thesis. It supposed to assist you with preparing your graduation work at the Department of Economic Sciences with the Communication Science esp. Computational Communication Science Research Group. The graduation thesis is necessary at the Ilmenau University of Technology in order to get a degree. Further in this document you will find some recommendations on the structure and indicative content of your final work.

2 Timeline

2.1 Selecting a topic of your thesis

Before selecting a topic for your thesis, please consult the list of open topics for Bachelor and Master students provided by our research group. If you are interested in one of the topics, you should write an e-mail to the contact person of this topic. If the contact person is available to supervise a thesis, you can start working on your exposé.

Own topic ideas are welcome but have to be discussed first. In general we expect that a topic idea is either methodologically and/or content wise related to the group's research interests. Please consult our website to learn more about our work.

2.2 Writing an exposé

A student is supposed to provide an exposé, which serves as motivation and justification of their research idea. Your exposé should include a topic, introduction and relevance, literature review and research question(s)/hypothesis (if any), method that you plan to apply in your work, references list, your working schedule, and appendix (if any) and should be of about 7-10 pages long (more on the structure of the exposé see Subsection 3.2). Writing an exposé may take several rounds of corrections and improvements from your supervisor, so keep in mind not to underestimate time you have for writing your graduation work.

2.3 Registering a thesis

When your exposé was approved by your supervisor, you should officially register your thesis at the examination office of the university. The registration form can be found on the website of the university.¹ The filled document should be handed in to the secretary of the research group. It will be then signed by your supervisor and sent to the examination

¹Find the registration form on the university's SharePoint or contact the Examination office

office. After the official registration, a student has six months to conduct research and write a thesis.

2.4 Attending colloquiums

It is a part of a graduation work to attend colloquiums offered by the research group. These are necessary to share your progress with other peers and supervisors. It is expected that every student participates in colloquiums' discussions making valuable contribution and providing constructive feedback. The exact time and location of these meetings to be shared beforehand with the students. Participating in a colloquium means the following:

- Visit regularly a Moodle page dedicated to Bachelor and Master colloquiums of our research group (<https://moodle2.tu-ilmenau.de/course/view.php?id=2970>).
- On this page, find a time slot assigned to you for your presentation.
- Prepare a presentation that includes your current progress.
- Upload this presentation in the format .pdf or .ppt(x) to the dedicated upload area a few days before the deadline (upload deadlines can be found on the same Moodle page).
- On the day of your presentation, present your progress in (no more than) 15 minutes.

2.5 Writing a thesis

This time period includes collecting your data, analyzing it, and documenting your work.

Making appointments. Our research group offers consultation hours and email communication to support students with issues they may face while writing a thesis. Please keep in mind that your supervisor requires certain amount of time to process your requests and familiarize herself/himself with your questions. It is a responsibility of a student to take care of making appointments with her/his supervisor. Proofreading of your document or plagiarism check are not offered by our research group.

Handing in your thesis. At the end of the six-month period, a student should submit the following materials at the examination office of the university:

- three hardcopies of the thesis,

- one digital copy of the thesis,²
- a printed copy of the auto-response e-mail that confirms the registration of your thesis in the online bibliography of TU Ilmenau,³ and
- the completed form for master examination procedure.⁴

2.6 Defending a thesis

Each thesis gets two reviewers for grading of the conducted work. In four to six weeks after submission, you will be required to perform an oral defense of your graduation work. You are required to prepare a 15-minute presentation of your thesis explaining your research, its relevance, and implications to the examination committee. There will be about a 20-minute discussion session, during which you may be asked to various questions about your work.

2.7 Getting a grade

After the defense you will receive a grade for your graduation work, which represents the arithmetic mean of a grade from your main supervisor, a grade from your second reviewer, and a grade for your oral defense.

3 Requirements

3.1 Writing style

All the documents described below should be written using the latest guidelines of APA style. At the time of the writing of the current version of this present document, the APA 7th edition is the latest version.⁵ Your exposé, thesis, and defense presentation should be written in the same scientific style.

²The requirement of our research group is to provide a USB stick with an electronic version of your thesis and online appendix.

³The registration in the library requires a student to insert the abstract of her/his thesis in the English and German languages. To complete the procedure use the form that can be found on the SharePoint. After submitting the abstract, you will receive the required the auto-response e-mail.

⁴The forms can be found here: <https://intranet.tu-ilmenau.de/site/fakwm-pa/SitePages/Formulare-f%C3%BCrs-Studium.aspx?web=1>

⁵You can find examples of professional papers written in APA 7 here: <https://apastyle.apa.org/style-grammar-guidelines/paper-format/sample-papers>

3.2 Exposé

An exposé should justify your choices in study design and motivate your selection of referenced literature. The length of the exposé is normally 7 to 10 pages. The document should have the following structure:

1. Introduction
Topic relevance should be described in this part.
2. Theoretical considerations and literature review
This part should outline theories (if any) applied to explain your research questions. State of the research up to the present day on the chosen topic should be described. In this section, students are also required to highlight gaps in the existing literature. Review only relevant studies in this part.
3. Research question(s) and/or Hypotheses
Your literature review section should motivate the choice of your research questions. State hypotheses here if needed. Clarify why is it relevant to answer these particular research question.
4. Methods
This part should contain description of your study design. Namely, sample, data collection techniques, dataset, and analysis plan should be outlined here. Please note that if you are conducting a study using R or any other software, do not forget to include references of these as well as of specific packages applied in your study. Keep in mind ethical considerations before describing and conducting your study.
5. Working schedule
Working schedule should include all your activities on the thesis during the six-month period. Activities should be detailed describing your weekly goals.
6. References
References list should include all the sources use in the document (print and electronic). Consult the latest APA manual for more information on citation style.

3.3 Thesis

3.3.1 Page limit

Below are page limits for bachelor and master theses set by the research group Computational Communication Science. Make sure to include **only relevant information** in your

work. **Exceeding the page limits is strongly discouraged and may result in a grade reduction.** The page limit includes the main text and references. The appendix, title page, abstract, acknowledgements, declaration of authorship, and table of contents do not count toward the page limit.

- Bachelor thesis - 30-35 pages;
- Master thesis - 50-55 pages.

3.3.2 Structure of your thesis

Below is the approximate structure you can use for your final work. Make sure you arrange your text appropriately and clearly.

1. Title page
It should provide the title of the thesis in full, the name of student and her/his degrees, the names and titles of the supervisors, the name of the student's institution, department, and research group, where the thesis was written, and the date of submission.
2. Abstract
The abstract serves as a summary of the thesis. Normally it is approximately 300 words long. The abstract should summarize the main information in the document, such as research aims, scope, major findings, and conclusion.
3. Acknowledgements
4. Declaration of authorship
The declaration of authorship page stating that your graduation work was done by you independently, that you did not use other sources or auxiliaries except those mentioned in the thesis, and did not publish the thesis in this or a comparable form or parts of it at another institution of higher education should be submitted within your document. The statement has to be signed manually.
5. Table of contents
6. Main text
The following chapters are recommended to include in the graduation thesis:
 - (a) Chapter 1: Introduction
Please start with an introduction into the topic. This part includes a short description of your research interest and why the described research interest/problem is relevant for science, society, etc. Then you can elaborate briefly on the approach

you chose. This part should be short and catchy. Usually this part is written after the Conclusion in order to avoid variability in goals and motivations.

(b) Chapter 2: Theoretical Considerations & Research Questions

Please explain here the theoretical background of your study (theories and related studies). This section should justify your research questions/hypotheses. Please keep in mind that research questions are the foundation of your thesis. The research questions are important, they give coherence and purpose to your whole study. If you use hypotheses in your work, please provide them here.

(c) Chapter 3: Methods

In this chapter, please describe your complete study design. This includes the following:

- i. *Study type*. Explain what type of research you are conducting, for example, experimental or observational study.
- ii. *Study design*. Describe your study design, e.g., within-, between-subject, or mixed study design for experimental studies; cohort, cross sectional, and case-control studies for observation studies. Content analysis can be manual or automated.
- iii. *Sample*. Describe your *sampling plan* including information on how you collected samples, as well as the number of samples you collect and your rationale for the decision. Please keep in mind that the data described in this section should be the actual data used for analysis, so if you are using a subset of a larger dataset, please describe the subset that is used in your study. Provide description of your *data collection procedures* employed to collect your data. This includes information about how you collected samples, duration of data gathering efforts, source or location of samples, or batch numbers you used. Include the description of the *sample size* of your study. Explain here how many units were analyzed in the study (e.g., number of people, interactions, or countries). If the units are not individuals, then describe the size requirements for each unit. *Sample size rationale* should be also included in this section. This can include a power analysis or an arbitrary constraint such as time, money, or personnel. Stopping rule: If your data collection procedures do not give you full control over your exact sample size, specify how you will decide when to terminate your data collection.
- iv. *Variables*. In this section you can describe all variables (both manipulated and measured variables) that were used in your analysis. *Manipulated variables*: Describe all variables you manipulated and the levels or treatment arms of each variable. For observational studies and meta-analyses, simply state that this is not applicable. *Measured variables*: Describe each variable that you mea-

sured. This includes outcome measures, as well as any predictors or covariates that you measured. *Indices*: If you combined several variables into an index (or even a mean), describe it here. Include either a formula or a precise description of your method.

(d) Chapter 4: Results

In this chapter, your analysis and results should be described. Make sure that you answer your research questions in this chapter. Normally, the Results chapter includes the following information:

- i. *Descriptive statistics*. This section describes the descriptive analysis (frequency tables, etc.) you used in the study.
- ii. *Statistical models*. The statistical models employed to answer your research questions should be included here. Please include the type of model (e.g. ANOVA, multiple regression, SEM, etc.), any computational approach (sentiment analysis, supervised machine learning), and the specification of the model (this includes each variable that will be included as predictors, outcomes, or covariates, and dictionaries you plan to use, etc.). Please specify any interactions that were tested.
- iii. *Inference criteria*. In this section, describe the information you used (e.g. p-values, Bayes factors, specific model fit indices), as well as cut-off criterion, where appropriate.
- iv. *Data exclusion*. This section should include the motivation behind your decisions to exclude certain data or samples, if any. Please also discuss outliers and distribution of your data.
- v. *Missing data*. Describe procedures you used to handle incomplete or missing data.

(e) Chapter 5: Discussion

In this chapter, extensive discussion of your results should be provided. Please provide critical overview of findings and try to explain why your study yielded these particular results referring, for example, to findings from previous literature. Please keep in mind that this is one of the most important parts of your thesis, which demonstrate your ability to critical thinking. Importantly, you should include extensive discussion on limitations of your studies and provide viable directions for future research on the topic of your thesis.

(f) Chapter 6: Conclusion

This chapter should provide a unified perspective on your study. Here you give a very brief overview of your study and reveal how your research questions were answered. Please note here significance of your work in the field of communication science as well as research community in general.

7. References

8. Appendix

In the printed version of the thesis, the appendix can be used to include tedious but necessary details. The appendix should contain information, which facilitates understanding of your thesis. Do not include too many materials in the appendix of your printed graduation work. For this you have an online appendix, which should contain all relevant data, materials, scripts etc. At the end, the online appendix should help to reproduce the thesis without actually contacting its author. As mentioned before, students are supposed to submit a digital copy of their theses. However, we would like to have an additional USB with the online appendix on it.

3.3.3 Submission files

Along with the documents you submit to the Examination office (see Section 2.5, *Handing in your thesis*), you need to include the following materials as a part of the digital appendix. The materials listed below are required in order to reproduce your study and ensure transparency and authenticity of your work. Note that some points may not apply or may partially apply to your project:

- Script(s) that include data collection, data management, data analysis, data visualisations should be submitted as separate file(s). **We do not accept scripts prepared in SPSS.** Please use R for anything related to data management and statistics.
- Dataset(s) that include your sample (e.g., a list of studies included in a systematic literature review; a set of comments/posts collected from a social media platform). Important: make sure your data does not contain any sensitive and identifiable information on your sample (e.g., names, addresses, links to social media profiles of your participants).
- Codebook with detailed definitions and descriptions of your categories;
- Surveys, questionnaires, consent forms, and similar;
- Plots and images as separate files if their separate submission is necessary for understanding of the thesis or for further use of these materials (e.g., part of an experiment's stimuli);
- Audio and video files if they are a necessary part of the thesis;
- Other materials important for the understanding and reproduction of your thesis.

3.4 Presentation

For your defense, you are required to prepare a PowerPoint presentation, where the whole study is supposed to be explained to the examination committee. Although you have a lot to say on your topic, please do not insert too much text in your slides. Try to communicate your ideas with minimum words and use as much graphics as possible. Calculate that you will spend one minute per slide during your presentation. The reviewers have already read your text and its details, so keep your presentation concise, balanced, and interesting. The structure of your slide should follow the structure of the main text your thesis (starting from introduction and ending with conclusion).