

Final Theses

at the

Faculty of Economics

Table of contents

Preliminary remarks	1
1 General information	1
1.1 Typical components of a thesis	1
1.2 Page numbering	2
1.3 Page format	2
1.4 Optional poster and executive summary	3
1.5 Evaluation criteria	3
1.6 General methodological aspects	4
1.7 To distinguish between bachelor's and master's theses	5
2 Content of the work	6
2.1 Abbreviations	6
2.2 Symbols and formulas	6
2.3 Figures, tables and illustrations	7
2.4 To individual components	7
2.5 Table of contents	8
2.6 Appendices and appendix directory	8
2.7 Formulation of academic texts	9
3 Citation guidelines	9
3.1 On the need for correct citations	9
3.2 Citation types	10
3.3 Citation methods	10
3.4 Citation styles	11
3.5 Bibliography	11
3.6 Directory of resources	12

Preliminary remarks

The following statements are valid at both bachelor's and master's levels. If necessary, reference will be made to the special features of master's theses at the appropriate point. In addition, this overview can also serve as a basis for the creation of papers or other scientific elaborations as part of your studies.

A variety of general hints on creating texts can be found at the German Spelling Council. You should base your thesis on the currently valid German spelling. In cases of doubt, you can also find relevant regulations at the German Institute for Standardization (DIN). The same applies if you write your work in English. In this case, too, please inform yourself about current orthography regulations and only use spellings from one region of origin, i.e. either British English or American English.

Finally, reference is made to the large number of instructions in book form regarding the content-related approach and design of an academic work. You should definitely – even if you attended a relevant course during your studies – read at least a few points in such a work. This also applies before you ask your first assessor for advice; you should primarily use the time you spend together to discuss content-related questions.

1 General information

1.1 Typical components of a thesis

A thesis typically consists of the following parts in the order listed:

- Labeled or unlabeled cover
- Cover sheet
- German summary and English abstract on one page
- Optional blocking notice upon presentation
- Optional foreword with personal content
- Table of contents according to design guidelines
- List of figures if necessary
- List of tables if necessary
- Alternative list of illustrations
- Optional list of abbreviations
- Optional symbol directory

- Optional formula list

This is followed by the actual text part of your work. Around 40 to 60 pages of content for bachelor's theses and around 60 to 80 pages of content for master's theses serve as orientation. If you want to deviate from this, we recommend speaking to your first assessor in advance. Finally, the following components are added:

- Complete bibliography
- Mandatory list of additional resources
- Optional appendix directory along with clearly labeled appendices
- Declaration of independence upon presentation

1.2 Page numbering

The components before the text part are numbered with Roman numerals. The text part is then numbered in Arabic, starting with 1. This numbering continues to the end of the document and is shown in the footer.

All commercially available word processing programs offer corresponding automatic functionality. A so-called section break must be inserted before the text part. This allows you to design the footers differently in the resulting sections. The same applies to the cover page, as it is not numbered.

1.3 Page format

Regardless of the language chosen, your thesis must be prepared in A4 portrait format with normal page margins (2.5 cm each except at the bottom). Format your text consistently in Times New Roman with a font size of 12 points, justified and hyphenated. The line spacing is 1.5. Also, add space after each paragraph to aid readability.

Use paragraphs consciously to structure your arguments. In addition, lists can be a useful stylistic device if they are used in a targeted manner. Make sure that there is enough text after each chapter heading and that it is not moved to the following page. The same applies to paragraphs.

The font size in the footnotes must be adjusted to 10 points. The line spacing is 1. Footnotes are separated from the text by a line. For this purpose, you must also use the corresponding function in all commercially available word processing programs.

1.4 Optional poster and executive summary

After consultation, a pictorial representation of the most important results can be made as a poster in A1 portrait format and attached to the work. This poster can also be used by the defense after consultation. This usually consists of a 20 to 30 minute presentation followed by a question and answer session.

Likewise, a summary can be provided in advance, particularly in the case of master's theses, upon agreement. The scope, content and, if necessary, the degree of anonymization for work with a blocked notice must be agreed upon in advance.

1.5 Evaluation criteria

Each thesis is assessed by two examiners on the basis of written reports. The following criteria are regularly taken into account when writing a thesis:

<p>Capturing and penetrating the topic</p> <ul style="list-style-type: none">- Structure and structure of the work- Systematics- Terminology (terms, meaning)- Weighting of sections- Use of relevant current literature <p>Investigation approach</p> <ul style="list-style-type: none">- Suitability, justification- Coherence of thought leadership- Methodology- Theoretical basis- Limitation to essentials <p>Troubleshooting</p> <ul style="list-style-type: none">- Analysis- Synthesis- Connections- Critical ability- Development of proposed solutions/alternatives- Derivation/justification of proposed measures- Originality- Logic (coherence, consistency, clarity)- Practicality <p>Motivation</p> <ul style="list-style-type: none">- Independence- Initiative- Engagement- Persuasiveness- Probability in the operational environment <p>Formal criteria</p> <ul style="list-style-type: none">- Visual impression (written image, tables, graphics, directories)- Citations- Spelling, punctuation- Style (readability, fluency, diction)

Figure 1: Selected evaluation criteria

Typically, higher demands are placed on the criteria of problem solving and the investigation approach for master's theses compared to bachelor's theses.

1.6 General methodological aspects

In general, a distinction can be made between literature work without own data collection and empirical work. Consequently, the penetration of the underlying literature plays a fundamental role, especially in the former case. However, this does not mean that empirical work can do without a theoretical foundation and thus an evaluation of the existing literature on the chosen topic. Essentially, you should show at this point that you can analyze and critically evaluate relevant literature. This regularly leads to an in-depth discussion of various sources with regard to the problem in your work. This includes, in particular, the assessment of the content of the

relevant literature streams and their analysis; pure replication should be avoided. Naturally, several literature sources must be used for this. Many standard reference works give you a rough guide to quantity with five to ten citations per page. You will also find valuable information about the quality of various sources, which is referred to as citation worthiness. This is not the only reason why it is advisable to intensively examine the methods of scientific work before starting to write.

If you decide to conduct your own survey based on your topic, you should pay particular attention to the selection of methods. A general distinction is made between quantitative and qualitative methods. The selection must be justified in detail and must be carried out in a scientifically sound manner. For example, interview guidelines or questionnaires must be developed in detail and implemented accordingly. The same applies to data evaluation. The spectrum ranges from purely descriptive evaluations to specific multivariate analysis methods. Typically, higher demands are placed on master's theses, especially in this assessment dimension.

1.7 To distinguish between bachelor's and master's theses

Naturally, the differences in the requirements for bachelor's and master's theses cannot be fully represented within the scope of such an overview. In addition, the problems are partly similar, but have to be dealt with differently in breadth and depth. In this respect, in addition to the basic literature on academic work already mentioned, reference should also be made to the qualifications framework of the Conference of Ministers of Education and Cultural Affairs:

At bachelor's level, graduates should be able to derive and define research questions. The operationalization used should be explained and justified in empirical work. Research methods should be used in a targeted manner and the research results generated should be presented and explained. In addition to standard works in book form, scientific publications should also be given sufficient consideration. From a methodological point of view, exploratory studies can be used if the associated sampling error is sufficiently discussed. In this respect, a problem should be dealt with independently and appropriate conclusions drawn.

At master's level, graduates should be able to independently design research questions and, based on this, select specific ways of operationalization in a well-founded manner. In this respect, research methods must be selected consciously and their selection justified. The research results generated in this way must be explained and critically interpreted. As a result, interna-

tional specialist literature should also be consulted. In empirical work, previously derived hypotheses should be tested representatively and against the background of scientific quality criteria. In summary, special attention should be paid to scientificity and the associated gain in knowledge.

2 Content of the work

2.1 Abbreviations

Abbreviations should be avoided in the running text if possible. However, abbreviations that are familiar to a broad audience are permitted. These include, for example, *e.g.* and *i.e.* These abbreviations do not need to be listed in an optional list of abbreviations. The same applies to abbreviations that are only used when specifying literature sources. These include, for example, *ed.* (for edition), *f.* (for following page), *ff.* (for following pages), *n.d.* (for no date), *n.a.* (for no author) etc.

This means that only the abbreviations that are necessary for understanding the content of your statements are relevant to the explanation. These can be abbreviations from the specialist area, but also, for example, company-specific abbreviations or – usually to a small extent – your own creations. When these abbreviations are mentioned for the first time in the running text, they must be introduced using appropriate wording (e.g. “... Lean Production, hereinafter referred to as LP, ...” or in short as “... Lean Production (LP) ...”) and included in a list of abbreviations. Examples of this are *AktG* (for the German stock law), *BPS* (for Bosch Production System) or *TPS* (for Toyota Production System).

You should carefully consider to what extent the use of abbreviations is really effective or can be avoided by making minor changes to the text. In any case, you should make sure that the abbreviation you choose is correct from a spelling perspective.

2.2 Symbols and formulas

Analogous to the guidelines for abbreviations, relevant mathematical notations are explained when used for the first time and included in a separate symbol list. Please keep in mind here that symbols that are quite obvious to you may be interpreted differently by your readers. An applicable example is the average symbol \emptyset , which can be translated as a diameter symbol or as an empty set. You should also ask yourself whether using the term *arithmetic mean* might

be more useful for your work. The latter is often referred to as *mean* and is consequently abbreviated as *M*. This in turn could also be its own abbreviation for *market* in economics texts. In light of these statements, please reconsider the use of abbreviations and symbols.

Formulas, such as those you need for mathematical derivations, are recorded as free-standing formulas, left-justified after a paragraph, and numbered consecutively. Please ensure that the reading flow is sufficient, for example by pointing out the use of the Fourier series (see Formula 1) in the running text. Corresponding functions are regularly integrated into word processing programs, which should then be used in order to obtain a visually appealing result.

$$f(x) = a_0 + \sum_{n=1}^{\infty} \left(a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)$$

Formula 1: Fourier series for the series expansion of a continuous function

2.3 Figures, tables and illustrations

Figures and tables must also be labeled accordingly, numbered and integrated into the text flow. In addition, a list of figures or tables must be prepared, stating the corresponding page number.

If you only have a few figures or tables, these can be summarized under the term “illustration”. As a result, the distinction between figures and tables no longer applies; your work will be preceded by a list of illustrations.

2.4 To individual components

Please provide your work – before any blocking note – with a publishable German-language summary and an English-language abstract with identical content. This should contain a maximum of 200 words and summarize the core results of your work. This also includes a brief characterization of the motivation for your work and a description of the chosen methodology. Please note that this is not a verbalization of your table of contents. You will also mention the keywords that are central to your work here, also in German and English.

The introduction serves to introduce the topic. In particular, the problem and objectives must be made clear here. In this respect, it is advisable to briefly characterize the targeted research gap and explain the relevance and importance of your work. Therefore, you should show what new findings can be expected from the work and what approach was chosen. However, the introduction itself is not a verbalization of your table of contents.

In the main parts, depending on the nature of the work (literature work or empirical study), the theoretical and methodological foundations for the task will first be created based on the status of the current literature. The explanations are intended to document the methodological tools for solving your problem. An analysis of existing processes or issues is then often carried out and weak points are identified and systematically worked out. Finally, in the conceptual part, approaches to solutions are developed, evaluated and proposed with appropriate justification. Practical recommendations for action can then be derived from the results generated.

In the last main chapter, a brief conclusion is drawn about the findings gained and the extent to which the goals have been achieved is critically self-assessed. Therefore, no new facts are presented in the summary. The work is rounded off by pointing out the need for further investigation or outlining further solution steps and thus provides a topic-related outlook.

2.5 Table of contents

Organize your work according to decimal classification, including page numbers. All commercially available text editing programs provide appropriate functions for this purpose; the use of which is strongly recommended. This creates a uniform overall impression of the formatting and allows the table of contents to be used in a targeted manner.

The scope of the respective chapters should be balanced. Typically, this leads to a maximum of three levels of structure, whereby the focus should be on the academic analysis. As a general rule, you should write no less than one page of text and at least two paragraphs per subchapter.

Make sure that the respective headings allow conclusions to be drawn about the content. This is usually not the case with general formulations such as introduction, conclusion or summary. It is therefore advisable to use more targeted and content-related titles. In addition, you can show here that you use relevant theories and models in your work.

Since the table of contents reflects the structure of your academic work and is therefore an expression of your approach, a discussion with your first reviewer is highly recommended. In this way, you ultimately avoid irritation for everyone involved and can also take special features of the recipient into account.

2.6 Appendices and appendix directory

First of all, it must be clarified whether any appendices can or should be integrated into the part of the text to which they refer. This placement has the advantage that the context and flow of

reading is maintained for the reader. In this respect, you should not include any text in the appendix that is relevant to understanding your thesis.

This means that only what is not essential to understanding the part of the text is included in the appendices. As a rule, this concerns documents that are important for understanding the work, but cannot be included in the text part due to their size. Examples of this include extensive tables, questionnaires used, transcribed interviews, detailed statistical evaluations, further statistics and any correspondence.

It is therefore advisable to discuss the need for an appendix with your first assessor. If appendices are necessary, they must be labeled sensibly and included in the table of contents or in the appendix directory in accordance with the general guidelines for content labeling.

2.7 Formulation of academic texts

Finally, when formulating your paper, you should pay attention to factual, neutral and academic language. Formulations from the first person perspective should therefore be avoided. Likewise, you should not use journalistic exaggerations or colloquial expressions (e.g. “tremendous” or “phenomenal”).

In particular, at the end of the work you should evaluate the results and analyze them in detail. However, this is not the same as expressing a personal opinion. It is also advisable to take a look at relevant reference works for academic work. The numerous generally available options for gender-appropriate formulations must be used appropriately.

3 Citation guidelines

3.1 On the need for correct citations

When creating an academic paper, it is expected that the views represented in the specialist literature and the solutions developed for this are researched and that a critical discussion takes place. Evidence of external views is provided through citations. In this respect, the correct citation is of fundamental importance in the context of your work. This of course also applies to illustrations.

Citations are ideas from other authors that have been taken over literally or analogously. Every quote must therefore be clearly proven and verifiable. This means that flawless citations are an expression of scientific care. Any omission of a necessary citation – regardless of whether it is

literal or substantive – will result in the suspicion of plagiarism.

3.2 Citation types

Direct citations are enclosed in quotation marks and require literal accuracy. Therefore, these quotations are also called *direct citations* or *quotations*. Any deviations from the original are indicated by additions in brackets with a corresponding note such as “modifications of author”. Emphasis in the quoted text should generally be retained; your own emphases are added with the addition “emphasized by author” to be identified by authorizing or similar wording. Additions to adopted tables or figures must also be marked. The omission of one or more words is indicated by three dots in square brackets [...]. Direct quotations should be short and should not replace your own formulations. Longer quotations are typically only appropriate when it is important to demonstrate the wording chosen in the quotation. In this case, it is recommended to indent longer quotations in the text and write them at single-line spacing.

A meaningful citation occurs when the ideas of others are adopted or based on. However, since there is no literal copying here, these citations are also referred to as *indirect citations*. Therefore, such a source reference always begins with “cf.” or “Cf.” (as abbreviation for confer). The scope of such an analogous takeover must be clearly identifiable. It may therefore be necessary to precede the quote with an introductory sentence (e.g. “The following presentation [...] is based on Meier (2022, p. 625 ff.)”). In addition, careful attention must be paid to the positioning of the citation. This can refer to a word, a sentence or a paragraph. Following the citation logic, the latter is only possible if there are no other sources in the paragraph. But even under these circumstances it is unclear whether the citation refers to the entire paragraph or just the last sentence of this paragraph. Clarity must be achieved here through appropriate choice of words.

3.3 Citation methods

The general rule is that every citation must stand up to scrutiny. In this respect, it must of course not be taken out of context or given a meaning other than that given to it by the author. In order to achieve the necessary verifiability, only German and English works are generally permitted. Sources in other languages must be translated (if in doubt, even formally correct) and attached to the work in an appropriate form. This also applies to the listing in your bibliography. In principle, you should cite from the original text. Only if the original work is no longer objectively accessible can it be cited as in the secondary literature after citing the source. In this case, the reference also indicates the secondary literature with the note “cited by ...”.

There are generally two ways to integrate quotes into your text. On the one hand – and this is the most common variant in the German-speaking world – footnotes can refer to the sources at the end of the quote. The footnotes are numbered consecutively and thus enable a clear assignment between the text and the source. The information is then regularly provided in the name (year) format, for example “cf. Müller (2022a), p. 254” or “Maier et al. (2021), p. 243 f.”.

Alternatively, source information can be displayed immediately after the quote in the running text. This corresponds primarily to the approach in English-language literature. However, this can sometimes affect the flow of reading – especially with longer sources. The information is then regularly provided in the format (name, year, page), for example “[...] (cf. Müller, 2022a, p. 254).” or “[...]” (Maier et al., 2021, p. 243 f.)”.

As you can see from the examples, the references are usually provided by three or more publishers using “*et al.*“. When specifying the year, a lowercase letter must be included for clear identification if there are several works by an author with the same last name. The page numbers must be specified using “*f.*” for the following pages or “*ff.*” for several following pages.

Regardless of the variant chosen and the language of your thesis, it is important to ensure that the citations can be assigned precisely. Therefore, the page numbers of the source you are referring to should also generally be stated. This also applies to a citation in the running text, although you will rarely find this in English-language publications.

3.4 Citation styles

In general, it is up to you which citation style you use, as long as it is clear and used consistently throughout the document. For example, the regulations of the American Psychological Association (APA) or the author-year citation method, also known as Harvard citation, provide very good and detailed guidance.

We recommend using a Reference Manager as special software, especially for your final thesis. You can obtain Citavi free of charge from the HTWD library website. This will ensure that your document has clear citations and that the bibliography is formatted in an attractive manner.

3.5 Bibliography

All sources used in writing the work are listed in the bibliography. Sources that are not cited are not listed there. In this respect, it is not a list of literature that you read for your work.

The sorting is done alphabetically by last name, then chronologically by year of publication. Indentations were intended to improve clarity. If information about individual components is missing, they must be identified.

Please note, particularly on websites, that their content is subject to change. If you still want to cite websites, you must take appropriate precautions to ensure that your statements can be clearly assigned and verified. These can be electronic copies on an external storage medium. Likewise, unpublished sources must be documented precisely and marked separately.

3.6 Directory of resources

The wording “[...] specified sources and resources [...]” in the declaration of independence leads to the need for a transparent list of resources from which

- the specific naming of the type of aid (e.g. spelling check, formulation optimization (with AI), argumentation checking by third parties, literature research and preparation (with AI) etc.),
- the specific location of use (e.g. throughout the document, in Chapter 2, on page 7 etc.) and
- in particular the scope of the deployment.

If you use IT-supported tools – which explicitly includes platforms based on artificial intelligence (AI) – detailed documentation of the scope of use is required. This can include, for example, inspiration when searching for a topic, support in creating the structure, writing a summary, a machine-generated translation or specific wording revisions. This can expediently be done by providing the respective inputs and outputs as a digital attachment to your thesis. This must then be mentioned separately in the list of resources and your role in the interaction must be emphasized. This can be done, for example, by using the following wording at the end of the list of resources: “I always worked in a controlled manner when using AI-supported writing tools as mentioned above. The entries used are attached to the thesis as a digital appendix and listed in the appendix directory.”

If you did not use any resources to create your work, this must be explicitly stated in the list of resources that is still required. You will not suffer any negative consequences from not using it. A possible formulation for this is: “No aids were used for this work.”