

Title

Subtitle

Master Thesis

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I hereby certify that I have not submitted this Master Thesis in any form (to a reviewer for assessment) either in Austria or abroad.

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Acknowledgements

Thank you!

Abstract

Zusammenfassung

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1. Introduction

This section introduces how to use this template and which format should be used for the master's thesis in Multilingual Technologies. **Please read and follow this document carefully!** If you write your thesis with a supervisor working at Hochschule Campus Wien University of Applied Sciences, you need to include the title page by leaving the three commands shown below as they are now in the frontmatter:

```
\input{meta/titlepage_master_fh_campus_wien}  
\input{titlepage_details}  
\input{meta/declaration_of_authorship}
```

Replace the entries in the file `titlepage_details.tex` with your own data to complete the title page. The page *Declaration of Authorship* is also only needed for Thesis written at HCW.

If you write your thesis with a supervisor employed at the University of Vienna, the title page will be auto-generated in the online submission system. Please comment out the three lines shown above in the frontmatter of this file to remove the title page.

At the University of Vienna master's thesis completed in English **have to contain a German summary**. So please make sure to complete the English abstract and German Zusammenfassung at the very beginning of this file. Both need to be submitted as part of your thesis.

2. Formatting Guidelines

All chapters and subchapters need to be numbered continuously, which you can achieve by using *chapter* for the main chapter and *section* for subchapters.

2.1. References and Bibliography

The bibliography is automatically provided for all publications and works you cite in the `main.tex` file in LaTeX. You can add new entries in the `bibliography.bib` file. To have a complete bibliography, the bib entries need to contain **all required information**. So please make sure that your bib entries in the bib file are complete. To cite papers, please use the `(Jurafsky and Martin, 2023)` or `Jurafsky and Martin (2023)` command. If you wish or have to include page numbers, add square brackets, e.g. `(Jurafsky and Martin, 2023, 123)`.

To reference sections, figures, tables, equations, images, etc., you need to introduce so-called labels to the respective elements. In general, labels are introduced right after beginning or introducing the element. So, for instance, for sections, the label is introduced right after the `\section{}` command. The label can then be directly addressed and referenced by using the `\ref` command, e.g. Chapter 2.2 or Fig. 1.

2.2. Text

Each paragraph apart from those right after a heading should be indented. Fortunately, this is done automatically in LaTeX if you introduce a blank line after the paragraph.

This is a new paragraph. To introduce a literal quote, please use quotation marks of the style “This is a literal quote” (Lamport, 1994) and make sure to always add number of the page on which you found the quote in the original work, e.g. (Lamport, 1994, 20). If the quote extends over more than three lines, please use the explicit *quote* environment instead of quotation marks:

This is of a longer quote that extends over more than three lines and also needs to be equipped with a direct reference as well as page number. (Goodfellow et al., 2016, 8)

2. Formatting Guidelines

Keep in mind that all literal quotes need to correspond 100% to the original, character for character, including the type of text encoding. If you wish to continue the previous paragraph after a quote, table or figure, please use the `\noindent` command as shown at the beginning of this paragraph.

For bullet lists you can use the environment *itemize*:

- This is a first list item
- And this is a second
 - And lists can even be nested

To introduce a numbered list, please use the environment *enumerate*:

1. This is the first numbered item
2. This is the second item

You might also want to introduce equations, for which you should use the environment *equation* and a label so that you can explicitly reference the equation in your text, such as Equation 1.

$$E = mc^2 \tag{1}$$

Any websites or URLs should **never** be simply written as text. Please add them as a bibentry to be referenced in the bibliography. If, for some reason, there is still a need to reference a URL in text, then make sure to use the command `url` and add it as a footnote as in ¹.

2.3. Tables and Images

The advantage of LaTeX is that it allows for continuous numbering of figures and tables and facilitates the layout of figures and tables.

In line with the institute's guidelines, each figure and table needs to have a caption. For tables the captions need to be *above* the table, as exemplified in Table 1. Please be aware of the fact that the label needs to be introduced after the caption to be able to refer tables in text. Each table and figure has to be referenced in text, e.g. Table 1.

For any kind of figure, that is, diagrams, pictures, graphical representation, the caption needs to be introduced *below* the figure. For example, see Fig. 1

¹<https://www.overleaf.com/learn/latex>

Table 1.: Some description of the table

Command	Output
<code>{\ "a}</code>	ä
<code>{\ ^e}</code>	ê
<code>{\ 'i}</code>	ì
<code>{\ .I}</code>	Ì
<code>{\ o}</code>	ø
<code>{\ 'u}</code>	ú
<code>{\ aa}</code>	å



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Figure 1.: Some description of the figure

2.4. Code

To include code in your text, you should use the environment *verb* as in `transformers`.

For a longer block of code, please use the verbatim environment:

```
Text enclosed inside \texttt{verbatim} environment
is printed directly
and all \LaTeX{} commands are ignored.
```

Alternatively, you can also use the *lstlisting* environment to encode longer blocks of code, which you can use as is or format and color-code as you see fit.

```
1 from transformers import AutoTokenizer
2
3 tokenizer = AutoTokenizer.from_pretrained("google-bert/bert-base-
   cased")
4
5 encoded_input = tokenizer("Do not meddle in the affairs of wizards
   , for they are subtle and quick to anger.")
6 print(encoded_input)
```

Listing 2.1: Python example

2. Formatting Guidelines

2.5. Algorithms

When representing algorithms in LaTeX it is common to represent them as pseudocode². Please also make sure to reference each included algorithm explicitly in the text, e.g. Algorithm 1.

Algorithm 1 An algorithm with caption

```
i ← 10
if i ≥ 5 then
    i ← i − 1
else
    if i ≤ 3 then
        i ← i + 2
    end if
end if
```

2.6. Acronyms and Glossary

If you want to use acronyms or a glossary check the page here: <https://www.overleaf.com/learn/latex/glossaries>

The Latex typesetting markup language is specially suitable for documents that include mathematics. are rendered properly an easily once one gets used to the commands.

Given a set of numbers, there are elementary methods to compute its Greatest Common Divisor, which is abbreviated GCD. This process is similar to that used for the Least Common Multiple (LCM).

²See <https://www.overleaf.com/learn/latex/Algorithms> for more details.

Bibliography

Ian Goodfellow, Yoshua Bengio, and Aaron Courville (2016). *Deep Learning*. MIT Press. <http://www.deeplearningbook.org>.

Daniel Jurafsky and James H Martin (2023). *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition*. Pearson Prentice Hall, Upper Saddle River, N.J.

Leslie Lamport (1994). *LaTeX – A Document Preparation System*, second edition. Addison-Wesley. User's Guide and Reference Manual.

Acronyms

GCD Greatest Common Divisor. 6

LCM Least Common Multiple. 6

Glossary

latex Is a mark up language specially suited for scientific documents. 6

mathematics Mathematics is what mathematicians do. 6

A. Appendix