

# UNIVERSITY OF HOHENHEIM

Guidelines for Writing a Bachelor's/Master's Thesis at the Department of Food Informatics

Institute of Food Science and Biotechnology Department of Food Informatics

Jun.-Prof. Dr. Christian Krupitzer

Last updated: December 7, 2023

https://foodinformatics.uni-hohenheim.de/

# Contents

1	Cou	rse 3
	1.1	General Remarks
		1.1.1 Prerequisites
		1.1.2 The Advisor
		1.1.3 Document Submission
		1.1.4 Grading
	1.2	Thesis Procedure
		1.2.1 Topic and Application
		1.2.2 Exposé
		1.2.3 Proposal Presentation
		1.2.4 Registration
		1.2.5 Working on your thesis
		1.2.6 Final Presentation
2	Forr	nat of the Written Report 7
	2.1	General Format
	2.2	Section Numbers
	2.3	Tables and Figures 8
	2.4	Listings
	2.5	Equations
	2.6	Tense
	2.7	Spelling and Grammar
	2.8	Generative AI
3	Stru	icture of a Scientific Paper 11
	3.1	Title Page
	3.2	Indexes
		3.2.1 Declaration of Originality ("Eidesstattliche Erklärung")
		3.2.2 Declaration of the Use of Generative AI Systems ("Erklärung zur
		Verwendung generativer KI-Systeme")
		3.2.3 Abstract and German Summary 13
		3.2.4 Table of Contents
		3.2.5 List of Abbreviations
	3.3	Main Part – Text
	3.4	Closing Part
		3.4.1 List of Figures
		3.4.2 List of Tables
		3.4.3 List of Listings
		3.4.4 Bibliography
		3.4.5 Appendix

4	Refe	rences and Bibliography	15
	4.1	Literature Research	15
	4.2	Citations	15
		4.2.1 Direct Citations	15
		4.2.2 Omissions in Literal Citations	16
		4.2.3 Indirect Citations	16
	4.3	Bibliography	16
5	Soft	ware for Writing the Thesis	17
	5.1	$\operatorname{IaT}_{FX}$	17
		5.1.1 Software	17
		5.1.2 Included Packages	18
		5.1.3 Additional Packages	18
		5.1.4 Some Tips and Tricks	18
	5.2	Microsoft Word or similar	19
	5.3	Literature Management	19
Bił	oliogr	aphy	19

# Abstract

These guidelines give a general overview of the requirements of a Bachelor's/Master's thesis at the Department of Food Informatics. This introduction does not claim to be exhaustive. It does not relieve you from your responsibility to inform yourself about the requirements of scientific work and requirements regarding your examination regulations ("Prüfungsordnung"). Your advisor is always your first contact in case of questions or ambiguities. The objective of a Bachelor's/Master's thesis is to elaborate a written report on a predefined topic and give at least one presentation on your findings.

# 1. Course

This section explains the general procedure for a Bachelor's/Master's thesis, from the preliminary discussion to the final presentation.

## 1.1 General Remarks

The following remarks regarding thesis supervision and the written report are valid for all types of scientific work.

### **1.1.1 Prerequisites**

To write a Bachelor's/Master's thesis in our department, we expect you to have basic knowledge in informatics, e.g., through participation in one of our department's modules. Depending on the specific topic of interest, knowledge of statistics and participation in modules at the Institute of Food Science and Biotechnology can be beneficial. Concerning Bachelor's theses, we recommend further participating in our Seminar "Introduction to Scientific Working" to get more details regarding our working methods and expectations on writing and presentations.

## 1.1.2 The Advisor

The Bachelor's/Master's thesis is your work. Hence, you are responsible for the final result that you submit. However, you are assigned an advisor along with your topic who will help you in case of questions regarding your topic or the formal regulations. Please note that every advisor has an individual concept of how to advise you. In general, the advisor encourages you to work independently. The advisor is not responsible for checking all partial results and confirming every progress. However, we strive for a cooperative approach, i.e., trying to support students as best as possible. This also includes reading parts of your thesis regularly and recommending possible improvements.

Since the Bachelor's/Master's thesis is your work, you are responsible for arranging meetings with your advisor. Your advisor is generally not in charge of informing you or scheduling meetings with you. We recommend arranging meetings at an early stage if you have any need for support. Further, you should prepare meetings to optimize them, i.e., inform your advisor in advance about your questions, issues, or current state (e.g., via e-mail). Additionally, preparing slides or sketches might assist your supervisor to follow and capture your ideas and questions. If you are unsure about formal processes or formatting, check your related examination regulations ("Prüfungsordnung") and these guidelines first. If you are still unsure or have questions regarding your topic or the content, your advisor is your first contact person.

## 1.1.3 Document Submission

You have to submit a PDF document of your work to pruefungsamt@uni-hohenheim.de via your *university e-mail address* following the examinations office regulations. Please note that your examination regulations might require printed copies. In this case, please submit only the required number of copies. The thesis should be printed double-sided and must be bound in spiral binding or adhesive binding ("Kaltleimbindung"). The binding should not allow replacing pages. Hence, simple plastic bindings are not accepted. Please contact your advisor before submitting to ask for personal preferences for the binding.

For all works, you must hand in a digital submission as a CD/DVD, USB flash drive, or digital copy (web storage or GitLab). The digital submission must present a comprehensive documentation of your work. Hence, the digital submission must contain

- your submitted digital copy (.pdf file),
- raw files of the thesis (e.g., .tex or .doc files),
- digital copies of the sources (especially of web pages, but also of other publications) as .pdf files,
- source code of the implementation (if applicable),
- raw data,
- (pre-)processed data,
- raw evaluation results (if applicable),
- figures (if applicable), and
- presentations.

Online resources may be unavailable after the access date. Thus, you must download online resources and make them available to your advisor with your digital submission. Name the files according to the respective reference – we recommend following the format "AuthorYear\_Shorttitle", e.g., this document "Krupitzer2023\_Guidelines for Writing a Thesis.pdf". Any source code should contain a README.txt file with a manual on configuring and running the implementation. Additionally, you must provide your presentations as .pptx and .pdf files. Please structure your digital submissions using folders.

## 1.1.4 Grading

Your final grade is mainly based on the written submission. However, the final presentation could be considered for Bachelor's/Master's theses – depending on the examination regulations and registration.

In general, submitting the work on time and passing the plagiarism check are essential requirements for it to become graded. Furthermore, we value compliance with the format of the written report, content having a red thread, clean referencing and complete bibliography, and autonomous work ("Eigenständigkeit"). Regarding the format and referencing, please check carefully Sec. 3 and Sec. 4, respectively.

Creating a red thread is often more complex. While working on your topic, you might gain a much broader knowledge than relevant to the thesis.

Although the thesis is your work, and you are responsible for what you submit, this does not mean you have to solve any issue on your own about autonomous work. Principally, we expect you to ask actively for assistance, to transfer advice from your advisor on similar issues or tasks, to work carefully, and to be reliable concerning appointments and agreements.

# **1.2 Thesis Procedure**

This section describes the procedure of writing a thesis at the Department of Food Informatics.

## **1.2.1** Topic and Application

If you are interested in writing your thesis in our department, you should first become familiar with our current research topics as well as the thesis topics we offer. You can find an overview on our website. Contact the team member responsible for the project/topic you are interested in and arrange an appointment to discuss possible thesis topics. Please refer to our website for up-to-date information on topics and processes.

## 1.2.2 Exposé

Before you start working on your thesis, you might write an exposé that specifies the topic and shows a preliminary structure of the thesis. This exposé clarifies the expectations of both you and your advisor towards the deliverables of the thesis — comparable to a contract. The advisor decides whether it is necessary for you to provide this exposé.

Therefore, the exposé should contain a thesis timeline, specify the research question you want to answer, state relevant background information, discriminate related work, and sketch your approach. The timeline helps to depict the various work packages you have identified. You should especially consider the time you will need to work on the topic for your literature research and for writing the thesis. This helps to avoid an underestimation of the complexity of specific work packages. Discussing these topics with your advisor immediately is a good way to avoid misunderstandings.

Your supervisor will review the exposé and provide feedback. However, the exposé will not be graded. Hence, you can use the exposé as the foundation for your thesis, especially the parts introduction, background, and related work.

## **1.2.3 Proposal Presentation**

You will have your proposal presentation ("Antrittvortrag") before the registration and during the proposal. This presentation includes up to 15 minutes of presentation of your work and 10 minutes of discussion. This helps to work out a clear proposal for your thesis. The presentation should provide an overview of your planned work, including research questions, your approach, and a timeline.

Your presentation will be held in our department's colloquium. Since exchanging ideas is an important part of research, attendance at all colloquia is mandatory. You must inform your advisor if you cannot attend due to study or work.

## 1.2.4 Registration

Once you have agreed on a topic and finalized the proposal phase in consultation with the advisor, the department will transmit your registration for the thesis module to the university administration.

## 1.2.5 Working on your thesis

After the registration, you will work on your topic. Regarding organizational aspects and instructions, your advisor is your first contact person. You should regularly inform your advisor to ensure that you comply with the timeline and topic scope. In general, we expect you to work approximately 30 hours per week, which is in line with the officially assigned workload in terms of ECTS points.

## **1.2.6 Final Presentation**

After completing your thesis, you have to present your findings in the colloquium in front of the chair, our current thesis students, and possibly other interested parties. The presentation consists of a talk and a subsequent discussion of your work (20+10 minutes). The time slots might be adjusted in case the study regulations of your course of study might have other values, e.g., in the case of a defense. You should discuss the details of the presentation, such as content and focus, with your advisor.

# 2. Format of the Written Report

You can find a  $\[AT_E X template for the thesis on the department's website. This template meets the requirements regarding formatting. Please discuss derivations from the template with your advisor.$ 

## 2.1 General Format

Extent:	(exclusive all indexes, exclusive appendix) Bachelor's thesis: 30-40 pages Master's thesis: 60-80 pages Please discuss any deviations with your advisor.
Font:	Font with serifs (in all parts of the report: headings, text, figures, etc.)
Font size:	11pt in text 11pt italic in page header 14pt bold in 1st order headings 12pt bold in 2nd order headings 11pt bold in 3rd order headings 10pt in figures and tables We highly recommend to use the provided
Format:	Justification, 1.5 line space, paragraphs are divided by a small margin Margin left and right: 3cm; margin top and bottom: 1 cm At maximum one level of bullet points Page break before each new chapter
Numbering:	(centered at the bottom of the page) Text pages: Continuous numbering with Arabic numbers Indexes: Roman numbers Appendix: Capital letters

# 2.2 Section Numbers

Sections are numbered consecutively using Arabic numbers, e.g., "Section 2.2" for the second subsection in the second section. Sections can be subdivided up to the third level, i.e., up to Section 2.2.1. Dividing a section into subsections is possible if more than one subsection is present.

## 2.3 Tables and Figures

Tables and figures must be described in the text and are consecutively numbered in the order in which they are referenced in the chapter, e.g., "Figure 2.1" for the first figure in Chapter 2. Tables and figures each have separate numbers. Tables and figures are captioned. The captions are placed *above* tables and *below* figures. Figures that have been retrieved/adapted from another source need to provide the references in the caption (see Figure 2.1). Tables and figures are preferable to be placed at the top or bottom of a page.

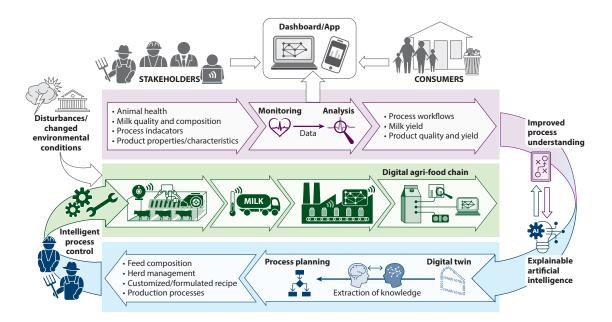


Figure 2.1: The vision of the digitalized agri-food chain [1].

Ta	Table 2.1: An exemplary table		
	Given name	Name	
	Christian	Krupitzer	

## 2.4 Listings

Listings should be described in the text and are consecutively numbered in the order in which they are referenced in the chapter (e.g., "Listing 2.1" for the first listing in Chapter 2). Listings are captioned *above* the listing, they are framed, and line numbers are placed on the left.

Listing 2.1: Hello World Program in Python.

1 def greet(): 2 print("Hello\_world!")

## 2.5 Equations

Equations should be explained in the text and are consecutively numbered in the order in which they are referenced in the chapter (e.g., "Equation 2.1" for the first equation in Chapter 2). The numbering is right-aligned and presented in parentheses.

$$a^2 + b^2 = c^2 \tag{2.1}$$

## 2.6 Tense

The generally used tense is present. In some parts, you might also use past and, unusually, future. In all cases, simple tenses should be used, thus avoiding passive forms.

The present is used for all statements that are still considered valid, e.g., your problem statement in the introduction, your results, and your interpretation. Also, within the background, definitions, basic concepts, or related works are presented in the present, e.g., Food Informatics is defined as "the collection, preparation, analysis and smart use of data from agriculture, the food supply chain, food processing, retail, and smart (consumer) health for knowledge extraction to conduct an intelligent analysis and reveal optimizations to be applied to food production, food consumption, for food security, and the end of life of food products" [2].

Past is used for everything that happened, e.g., the description of your research methodology or related works – the authors of [3] showed the relevance of context for self-adaptive systems. Additionally, the past is used if statements are not valid anymore. However, if related work is still up to date, present must be used, e.g., the work of [3] provides an overview of engineering approaches for self-adaptive systems.

Future is used exceptionally, e.g., to describe your work's aim or to provide an outlook on your work. Further, the future might be used when presenting future work. However, use it carefully – it could be beneficial to make suggestions instead (using "could").

## 2.7 Spelling and Grammar

Working carefully is fundamental for scientific works. This includes spelling and grammar. We expect you to check both before providing your drafts to your advisor for feedback. If writing in English, please apply American English. Concerning grammar, you might use artificial intelligence (AI) assisted typing assistant such as Grammarly – for details regarding the use of AI assistance, see Section 2.8.

## 2.8 Generative AI

Using generative AI systems is allowed for writing Bachelor's/Master's theses. Generative AI means AI-based systems that generate new, similar data using statistical techniques and based on training data, e.g., texts, images, or program code. You need to submit an extended declaration of originality with your written work, in which you document exactly how you have used the AI systems in the individual tasks. *Nevertheless, you are fully responsible for the academic accuracy of your written work.* 

Note that the spelling and grammar check in Microsoft Word or tools like DeepL or Grammarly are AI-based systems. For further information, please see https://www.uni-hohenheim.de/einsatz-von-generativer-ki-in-pruefungen and ask your advisor in the case of questions.

# 3. Structure of a Scientific Paper

This section describes the requirements regarding the structure of a scientific work. The LaTeX thesis template provided by the department meets these requirements.

## 3.1 Title Page

The title page should include the following information:

- Name of the University
- Institute and department
- Full name and title of the reviewer(s) and the advisor(s)
- Type of the paper (Bachelor's Thesis / Master's Thesis)
- Topic (Title, Subtitle)
- First name and surname of the author
- Matriculation number and course of study
- Submission date

## **3.2 Indexes**

This section describes parts placed before the work's main part (text).

#### 3.2.1 Declaration of Originality ("Eidesstattliche Erklärung")

Each candidate has to make the declaration of originality stating that the paper/ thesis is self-penned:

Hiermit erkläre ich, Vorname Name (Matrikelnummer), dass ich bei der vorliegenden Bachelor-Thesis/Master-Thesis die Regeln guter wissenschaftlicher Praxis eingehalten habe. Ich habe diese Arbeit selbständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel benutzt und die wörtlich oder inhaltlich übernommenen Stellen als solche kenntlich gemacht. Sämtliche Sekundärliteratur und sonstige Quellen sind nachgewiesen und in der Bibliographie aufgeführt. Das Gleiche gilt für graphische Darstellungen und Bilder sowie für alle Internet-Quellen. Ich erkläre weiterhin, dass ein unverschlüsseltes digitales Textdokument der Arbeit übermittelt wurde. Ich bin damit einverstanden, dass diese elektronische Form anhand einer Analyse-Software auf Plagiate überprüft wird. Weiter erkläre ich, dass ich zur Kenntnis genommen haben, dass die beim Prüfungsamt zuerst eingereichte Abschlussarbeit die finale Version ist. Ich habe verstanden, dass ich keine Korrektur nachreichen kann.

#### English version (not legally binding):

I, first name and last name (matriculation number), declare that I have followed the Principles of Good Scientific Practice while writing the present Bachelor's thesis/Master's thesis. I have written the thesis independently and have used no other sources or aids than those given and have marked the passages taken from other works word-for-word or paraphrased. The same applies to graphical representations and images as well as to all thesis sources.

I furthermore declare that the submitted unencrypted electronic document. I give my consent to this electronic version being checked for plagiarism with analytical software. Furthermore, I declare that I understood that the thesis submitted first to the examination office is the final version. I acknowledge that I will not be able to submit corrections later.

The declaration is completed with the author's signature.

### 3.2.2 Declaration of the Use of Generative AI Systems ("Erklärung zur Verwendung generativer KI-Systeme")

If you used generative AI systems, you have to disclose the use of these. You can omit this section if you have not used generative AI systems.

Bei der Erstellung der Arbeit habe ich die folgenden auf künstlicher Intelligenz (KI) basierten Systeme benutzt:

1. ... (Aufzählung)

Ich erkläre weiterhin, dass ich mich aktiv über die Leistungsfähigkeit und Beschränkungen der oben genannten KI-Systeme informiert habe, die aus den oben angegebenen KI-Systemen übernommenen Passagen gekennzeichnet habe, die mithilfe der oben genannten KI-Systeme generierten und von mir übernommenen Inhalte auf ihre faktische Richtigkeit überprüft habe, und mir bewusst bin, dass ich als Autor:in dieser Arbeit die Verantwortung für die in ihr gemachten Angaben und Aussagen trage.

Die oben genannten KI-Systeme habe ich wie im Folgenden dargestellt eingesetzt.

Arbeitsschritt	Eingesetzte(s)KI-System(e)	Beschreibung der Ver- wendungsweise

#### **English version:**

I used the following artificial intelligence (AI)-based systems to create the thesis:

1.  $\dots$  (enumeration)

I further declare that I have actively informed myself about the capabilities and limitations of the AI systems mentioned above, have marked the passages taken from the AI systems mentioned above, have checked the content generated with the help of the AI systems mentioned above, and adopted by me for factual accuracy, and am aware that I as the author responsible for the information and statements made in this work.

I have used the AI systems mentioned above as described below.

Working step	Used AI system(s)	Description of the use

The declaration is completed with the author's signature.

#### 3.2.3 Abstract and German Summary

Each thesis should contain a short abstract in Ethesis and a German summary. If the thesis is written in English, the summary in German ("Zusammenfassung") should be at least one page long. Therefore, the English and the German versions should contain the same content.

#### **3.2.4** Table of Contents

The table of contents represents the logical structure of a scientific paper. The depth of the structure should be in relation to the requirements and the scope of the text. The chapters must be enumerated continuously, and the page number for each chapter must be declared. The hierarchical structure of the list of contents must be clearly visible by indenting the chapters. Each section should have none or at least two subsections.

#### **3.2.5** List of Abbreviations

This list contains all acronyms in alphabetical order and their explanation (e.g., DFS: Depth-First Search). Additionally, all formula signs and parameters, including their units, might be listed here – also in alphabetical order and their explanation. The list could be further subdivided into smaller sections for a better overview.

## **3.3 Main Part – Text**

Aside from the scientific quality, linguistic presentation and comprehensibility influence the grade for your work. The language should be objective and neutral. Avoid writing in the first person. Expressions like: "we made" and "I think" should not be used. Use short and concise sentences and avoid nested sentences/ footnotes to make the paper more comprehensible. Spelling and punctuation errors can negatively affect the grade. Proofreading by a third person is therefore recommended. The level of abstraction and detail must be appropriate for the topic and scope of your work. An objective presentation and critical reflection of your work, including advantages and disadvantages, is crucial. Explain technical terms at their first appearance and use them consistently.

There are further formalities when writing scientific works. In the following, we will address a few of the most important points. These include formatting or emphasizing formula signs and parameters in math mode, e.g., the variable x or the mass m. Formula signs, parameters, and abbreviations should be noted in the *List of Abbreviations*. Additionally, it is important to ensure that in the text, neither values and units nor types and numbers nor references are separated by a line or page break. Therefore, protected spaces can be used, in LATEX by inserting a tilde (~), e.g., "Food Informatics~\cite{Krupitzer2021}" produces a protected space before a reference "Food Informatics [2]".

Computer science works are generally structured as follows. Worth mentioning is that the structure of your work is not fixed. Details should be discussed with your supervisor.

- 1. Introduction
- 2. Theoretical Foundations
- 3. Related Work
- 4. Methodology
- 5. Main part: Approaches, models, implementation...
- 6. Evaluation
- 7. Discussion
- 8. Conclusion

The introduction motivates your work. The objective is formulated, the current problem, your approach, your contributions, and the content of the paper (outline) are presented. All background information is required to understand your work, and the discussion within the theoretical foundations is provided for the unknown reader. The related work distinguishes your work from similar publications. The methodology describes how you conduct your research, and the main part presents what you have done. The evaluation presents your results, which are subsequently discussed. The discussion places your results in the research landscape. Further, *threats to validity* are discussed where you consider what your research misses and how you tried to mitigate these gaps. Finally, your work concludes with the takeaway message.

## 3.4 Closing Part

This section describes parts that are placed after the work's main part (text).

## **3.4.1 List of Figures**

This list contains the number, the caption, and the page number of each figure.

## 3.4.2 List of Tables

This list contains the number, the caption, and the page number of each table.

## 3.4.3 List of Listings

This list contains the number, the caption, and the page number of each code listing.

## 3.4.4 Bibliography

The bibliography must contain all references. For further details on referencing and the bibliography, see Section 4.3.

## 3.4.5 Appendix

The appendix contains figures, tables, etc., that are not required for general comprehension but provide a valuable contribution to your work. The appendix is optional. Core parts of a thesis should not be moved to the appendix.

# 4. References and Bibliography

This section provides information about finding literature for a thesis, correctly citing, and creating a bibliography.

## 4.1 Literature Research

Literature research is a substantial part of scientific writing. Thus, it is highly important to dedicate sufficient time to it and accurately perform the literature research. One of the major sources of information is the Internet. However, not all sources are reputable and can be cited in a scientific work. Although scientific papers are generally preferred over company publications, so-called 'white papers' or product descriptions may be helpful in presenting the state-of-the-art.

Digital libraries such as ACM Digital Library (dl.acm.org), IEEE Xplore (ieeexplore.ieee.org), and Springer Link (link.springer.com) provide good sources in the area of computer science and food science/food technology. The University of Hohenheim has the licenses to access major parts of these libraries. Publications can be accessed free of charge via the university's intranet (using the VPN client). Publications can be either found directly on the libraries' websites or via a search engine such as Google Scholar (scholar.google.com).

## 4.2 Citations

Citations encompass, for example, other peoples' thoughts, ideas, results, and opinions, recited word by word or referenced inside a text. Each citation needs to be verifiable. Hence, it is indispensable to add a reference to each citation. Parts of the text without references are considered as the author's original work. Each proposition in your work needs to be proved by referencing a public source or by the author's work. Citations in the text comprise the author(s) and the year of publication. The bibliography contains the details of all sources that were used in the scientific work.

#### 4.2.1 Direct Citations

When you use parts of existing literature word by word, you have to put the citation into quotation marks. After the direct citation, you provide the reference, including the page number. In this case, you have to use the exact wording of the source. However, the usage of direct citations is rather uncommon. Use references to the context of a text whenever possible.

Example: The participants of the first Dagstuhl seminar on *Software Engineering for Self-adaptive Systems* agreed on the following quite generic definition:

[Self-adaptive systems] are able to adjust their behavior in response to their perception of the environment and the system itself. [4, p. 1]

## 4.2.2 Omissions in Literal Citations

The symbol [...] indicates the position in the text where a part of the original text is omitted.

Example: Additionally, the participants of the Dagstuhl seminar clarified the term *self*: The "self" prefix indicates that the systems decide autonomously [...] how to adapt or organize to accommodate changes in their contexts and environments. [5, p. 49]

## 4.2.3 Indirect Citations

Quotations of ideas require stating the original source as well. These quotations are used to integrate ideas from published texts into your own work. The page number is only required if the reference of the quotation is a long text, such as an entire book.

Example: Whereas most approaches monitor the context, an explicit adaptation of context is often not included, and the environment remains uncontrollable for the adaptation logic [6].

# 4.3 Bibliography

The bibliography contains complete information about all sources referenced in the work. We apply the IEEE style for numbering citations.

The IEEE style is a numeric style, where citations are numbered in the order of appearance. This citation leads the reader to a complete reference to the source in the list of references at the end of your work. Each citation number should be enclosed in square brackets on the same line as the text, before any punctuation, with a space before the bracket. Once a source has been cited, the same number is re-used for all subsequent citations to the same source.

# 5. Software for Writing the Thesis

This section provides advice for writing your thesis. In general, you are free to choose your preferred software. However, we highly recommend the use of IATEX for which we provide a thesis template at our department's website. The ZIP file can be downloaded via this link: https://foodinformatics.uni-hohenheim.de/fileadmin/einrichtungen/foodinformatics/Lehre/Theses/thesis-latex\_template.zip

## 5.1 ⊮T<sub>E</sub>X

In contrast to "What You See Is What You Get" word processors like Microsoft Word, OpenOffice, LibreOffice Writer, and Apple Pages, you write commands in a special syntax for assigning special types of text in  $\mathbb{L}T_{E}X$ . The code is compiled into the final document (often a PDF) using formatting guidelines.

## 5.1.1 Software

For using LATEX, you need a LATEXdistribution (e.g., MiKTeX at http://miktex.org/) as base to produce an output file and a LATEXeditor (e.g., TeXnicCenter at http:// www.texniccenter.org/ or TeXStudio at https://texstudio.org/). Alternatively, you can use an online editor (e.g., Overleaf). There exist many tutorials, which might be helpful at the beginning, e.g., http://latex.tugraz.at/latex/tutorial and https://www.overleaf.com/learn/latex/Learn\_LaTeX\_in\_30\_minutes.

Further, in case of problems, just google the error message! You will definitely find some information, e.g., in forums like *stack exchange* or *stack overflow*. Additionally, ChatGPT might also help find solutions in case of errors.

### 5.1.2 Included Packages

The provided template already contains the following packages. Regarding the usage of the packages and commands, see their related documentation!

Package	Purpose
inputenc	encoding of standard ASCII, e.g., for German Umlaute
fontenc	encoding for German Umlaute
babel	enables $\mathbb{A}_{\mathbf{E}}$ to typeset in many different languages
graphicx	integration of graphics or images
subfigure	include figures with multiple images
url	inclusion of web addresses that allow linebreaks at certain characters
tikz	creating graphic elements
listings	source code typesetting environment
algorithm	float wrapper for algorithms
algorithmic	algorithm typesetting environment
acronym	automated use of acronyms and creation of a list of acronyms
hyperref	handling of cross-referencing commands producing hypertext links
xcolor	easy driver-independent access to colors
rotating	perform all the different sorts of rotation, including complete figures and
	tables
tabularx	modifies the widths of certain columns to set the table with the requested
	total width
arydshln	dashed lines in arrays and tabulars

#### 5.1.3 Additional Packages

In addition to the previously mentioned packages, we propose some further packages the department's employees have used in the past and considered valid. Please note that many more packages exist, even to achieve issues that have already been addressed with the following.

Package	Purpose
booktabs fancyref mhchem multirow todonotes verbatim	creating fancy tables, e.g., see Table 2.1 cross-referencing with automatically assigning the type using chemical formulas creating tables containing cells covering multiple columns or rows insert to-do items reimplements the LATEX verbatim environments (default tool to display code) and provides further a comment environment

#### 5.1.4 Some Tips and Tricks

 ${\rm IAT}_{\rm E}\!{\rm X}$  is a powerful and comprehensive tool for type setting scientific publications. The possibilities are almost unlimited.

In general, many special characters are used for typesetting, e.g., % marks comments or & is the column delimiter in tables. To print these characters in the text, insert a backslash ahead, e.g., % for % or & for &. Further, there are commands for Greek letters or some units, e.g.,  $\label{eq:general}$  for  $\alpha$  or  $\textcelsius$  for  $\C$ .

Regarding Overleaf, you can find some helpful keyboard shortcuts here: https://www. overleaf.com/learn/how-to/Hotkeys. Creating the bibliography, setting an extra {} around titles or names leads to capitalization or full name printing, respectively, if required.

# 5.2 Microsoft Word or similar

You are free to use "What You See Is What You Get" word processors like Microsoft Word, OpenOffice, LibreOffice Writer, and Apple Pages. However, we currently do not provide any templates for this. Therefore, you need to ensure compliance with the formalities on your own.

# 5.3 Literature Management

Literature management programs help to order your literature and provide interfaces for integrating the literature sources into your work. The University of Hohenheim also offers licenses for Citavi and Zotero, which we recommend for usage.

# Bibliography

- C. Krupitzer and A. Stein, "Unleashing the Potential of Digitalization in the Agri-Food Chain for Integrated Food Systems," *Annual Review of Food Science and Technology*, vol. 15, no. 1, p. null, 2024.
- [2] C. Krupitzer and A. Stein, "Food informatics—review of the current state-of-the-art, revised definition, and classification into the research landscape," *Foods*, vol. 10, no. 11, 2021.
- [3] C. Krupitzer, F. M. Roth, S. VanSyckel, G. Schiele, and C. Becker, "A survey on engineering approaches for self-adaptive systems," *Pervasive and Mobile Computing*, vol. 17, pp. 184–206, 2015. 10 years of Pervasive Computing' In Honor of Chatschik Bisdikian.
- [4] B. H. Cheng, R. Lemos, H. Giese, P. Inverardi, J. Magee, J. Andersson, B. Becker, N. Bencomo, Y. Brun, B. Cukic, G. Marzo Serugendo, S. Dustdar, A. Finkelstein, C. Gacek, K. Geihs, V. Grassi, G. Karsai, H. M. Kienle, J. Kramer, M. Litoiu, S. Malek, R. Mirandola, H. A. Müller, S. Park, M. Shaw, M. Tichy, M. Tivoli, D. Weyns, and J. Whittle, "Software Engineering for Self-Adaptive Systems: A Research Roadmap," in Software Engineering for Self-Adaptive Systems, vol. 5525 of LNCS, pp. 1–26, Springer, 2009.
- [5] Y. Brun, G. Di Marzo Serugendo, C. Gacek, H. Giese, H. Kienle, M. Litoiu, H. A. Müller, M. Pezzè, and M. Shaw, "Engineering Self-Adaptive Systems through Feedback Loops," in *Software Engineering for Self-Adaptive Systems*, vol. 5525 of *LNCS*, pp. 48–70, Springer, 2009.
- [6] J. Andersson, L. Baresi, N. Bencomo, R. de Lemos, A. Gorla, P. Inverardi, and T. Vogel, "Software Engineering Processes for Self-Adaptive Systems," in *Software Engineering* for Self-Adaptive Systems II, vol. 7475 of LNCS, pp. 51–75, Springer, 2013.