

Instructions for Writing a Scientific Thesis

1 INTRODUCTION

This writing instruction concerns the preparation of a bachelor's thesis, a master's thesis and a licentiate thesis. It is also suitable as a guideline for drafting project reports and reports related to laboratory work. The layout and practices of the dissertation are subject to separate, general guidelines of the university and faculty.

These guidelines aim to define the aspects related to the layout of the thesis and to clarify some other practices related to the making of the thesis. Instructions related to writing are not prescriptive, but the student, in cooperation with their supervisor, can apply the instructions in such a way that the thesis is as clear as possible and appropriate for the overall work.

The extent of the bachelor's thesis in the Department of Chemistry is 6 ECTS. One can also do a research project of 3–6 ECTS as an option. The scope of the master's thesis is 30 ECTS including the literature and the experimental part.

Time must be set aside for the preparation of the thesis. Other studies, such as lecture courses or laboratory work, are not recommended at the same time as the master's thesis work, so you can concentrate fully on your work and get the thesis done on a reasonable schedule. The indicative size of the experimental part of the thesis is 2.5–3 months of full-time research work in the laboratory (Mon–Fri 8–16). It is a good idea to work on the reporting of the experimental part already during the laboratory phase when the work is fresh in mind. In total, the indicative duration of the master's thesis is approximately 6 months.

2 COMMENCEMENT OF WORK

2.1 Steering Agreement

A written supervision agreement is made with the supervisor for the bachelor's and master's theses, where the supervisor and the thesis author agree on the topic, schedule and supervision of the work. In this context, the evaluation criteria for the thesis are reviewed. The purpose of the agreement is to commit both the student and the instructor to making and directing the thesis. It is a good idea to agree a regular meeting schedule with the work supervisor, in which the progress of the work is monitored and the problems related to the work are discussed together. For experimental work, there are occupational safety guidelines that are reviewed and signed with the supervisor before starting the work.

In English degree programmes, the language of work is English. Particular attention should be paid to the linguistics, structuring and coherence of the thesis (e.g. abbreviations, literature references, and the appearance of tables and pictures), as the linguistics, in addition to the content of the thesis, is of great importance for the final usefulness and value of the work and for its comprehensibility.

2.2 Compilation of Material

The preparation of the literature part of the thesis begins with the compilation of the source material and familiarization with it. The material is then grouped, and a table of contents is made based on it, which is reviewed with the thesis supervisor. The table of contents will serve as a framework for future work, to which additions or changes can be made as the writing progresses, depending on the situation.

There is no absolute requirement for the length of the work, as the scope of the work depends on the topic. Generally, a bachelor's thesis should have 15–20 references and 15–25 pages. The literature review in master's thesis should have about 40 references and at least 30 pages.

3 GENERAL CONTENT OF THE THESIS

The thesis usually includes the following sections:

- | | |
|----------------------|-------------------------------|
| A. Cover page | F. Introduction |
| B. Abstract | G. Main text chapters |
| C. Preface | H. Summary (or Conclusions) |
| D. Table of contents | I. Literature (or References) |
| E. Abbreviations | J. Appendices |

- A.** An example of a cover page is given in Appendix 1.
- B.** Abstract is a self-contained entity in which the purpose of the work and the results obtained are summarized (about one page) in such a way as to give the reader a clear understanding of the content of the work. Nothing more will be written on the abstract page.
- C.** The preface (up to one page) shows when and where the work was done, whether it was done in cooperation with industry, who were the supervisors, and other aspects of the practical implementation of the work. The preface also describes how the topic is limited and how the literature or other source material has been acquired. The use of AI must be reported transparently (see Chapter 5 for more information). The preface is concluded with thanks.
- D.** The table of contents shows the structure of the thesis with chapter and page numbers, see Appendix 2. When making a table of contents, you should take advantage of the table of contents function in the word processing program.
- E.** The abbreviations or symbols used are shown in the acronym list if the text repeatedly uses abbreviations and various code names that are not generally known. Nothing more will be written on the page. The acronym is opened to the reader when it is first used in a text, by putting it in parentheses after the actual meaning. For example, ‘The capillary electrophoresis (CE) is ...’.

- F.** The thesis begins with a topic-motivating introductory chapter, where the topic and, in the case of a master's thesis, the research problem are presented in general terms. The introduction provides the background of the thesis, gives an idea of its objectives succinctly, and explains how the thesis is structured.
- G.** The master's thesis formally contains a literature part and an experimental part, unless there is a special reason for separating them into separate works (e.g., if the literature review and experimental work have been done on different topics). Explicit division into the literature part and the experimental part is not required. The structure of the text seeks to be logical and structured, which is clarified by subheadings.

The thesis is usually structured in such a way that the related literature and the examination of theory are first discussed. Next, the methods, equipment and reagents used in the work are presented, after which we proceed to report our own research results. The report of the experimental part of the thesis or the research project must include background related to the experimental work, unless it has already been presented in connection with the literature review. The methods, test arrangements and equipment parameters used should always be recorded in such a comprehensive manner that anyone with the corresponding training is able to repeat the tests and measurements made based on the report. When processing the results of the experimental part, attention must be paid to the accuracy of the reporting and analyses, as well as to the examination of any measurement errors. The experimental part can also be presented in the so-called publication format. In this option, an accurate description of the practical conduct of the experiments (e.g. synthesis instructions) will only come after the summary.

- H.** The summary chapter is the end of the entire thesis. It brings together the most important things in the thesis, draws conclusions from the results of the experimental part and other observations, and considers the significance of the results. The summary is of the same type as the abstract, but broader and more detailed. The master's thesis also considers whether the stated goal was achieved and whether it would be possible to continue the research based on the results obtained.

- I.** Literature references are provided after the text section before the appendix list. When making citations and a list of references, use of a reference management software is highly recommended.

- J.** Selected data necessary for understanding the work, such as measurement results, spectra, large tables, as well as other material, which it is not reasonable to present in the main text, are added as appendices.

4 LAYOUT AND TYPOGRAPHY

When planning the thesis, it may be useful to see examples of the theses previously made in the department. The theses are available in electronic format in the University's JYX publication archive (<https://jyx.jyu.fi/>).

4.1 General Layout and Page Numbering

The thesis is written on an A4 sheet so that the margin is set at 1.5 cm at the bottom and 2.5 cm at the other edges. The page number is placed at the top or bottom of the page (header/footer) in the middle, 1 cm from the edge of the paper. The text uses Times New Roman or a similar 12-point font and a line spacing of 1.5. The chapter titles can also be in the size 14 pt. The text does not use coloured headings or fonts. The use of header styles is recommended as it allows the creation of an automatic table of contents and complies with accessibility principles. Instructions for using the LaTeX typesetting program can be found in Appendix 3.

Paragraphs are not indented, and rows are justified. Text paragraphs and chapters are separated by a blank space, as is done on this page. The main chapters can also be started on a new page. Chapter titles and molecular numbers, if used, are bolded. No more than four digits are used for sub-numbering (e.g. **2.2.1.1**). If you want to highlight the text, you can also use underline instead of **bold**. However, the emphasis on the text by the said means must be used with caution.

The following principles are followed in the page numbering of theses and reports:

- The pages of the first part up to the table of contents and abbreviations are numbered with Roman numerals i, ii, iii, etc. The cover page is part of the page numbering, but its number (i) is hidden.
- Text pages from Introduction are numbered with Arabic numerals 1, 2, 3 etc.
- The annexes are numbered APPENDIX 1, APPENDIX 2, etc. These markings are placed in the upper right corner of the annex. An appendix with several pages is entered e.g. Appendix 2 (1/2), and the number of pages in such an appendix is entered in the appendix list. Page numbering does not continue with appendices.

4.2 Figures and Tables

The pictures and tables necessary to understand the matter are placed in the main part of the thesis. Additional images and tables can be presented as appendices. A separate sequential numbering is used for images, tables, reaction equations, compounds, and graphs. Images and captions are centred. The figure caption is placed as an explanation below the image. Under the caption, an empty space corresponding to one row is left. The table text is placed as a title above the table. The table text starts with the left margin and is separated from the preceding body text by a blank row. The table itself can be centred or aligned with left margin. There will also be a blank row after the table. The image and table texts use the same font as the body text. Only mathematical quantities, and terms which are commonly written in italics, like Latin names, are written in italics. Captions end in a dot, but table texts do not. It is often the clearest to place images and tables at the bottom or top edges of pages.

The text should contain a reference to each image and table in the context of a sentence that discusses about the image or table. As a rule, the image is placed after the text on the subject. A reference to an image or table is usually shown in parentheses at the end of a sentence, for example: ‘This sentence could deal with the structures of a crown ether (Figure 1)’. If the image or table is taken directly from a source, the caption must contain a reference to the original source, and permission to reuse the image must be obtained from the right holder (publisher of the journal). For the sake of accessibility, tables should be self-written rather than copied as an image. Instructions for reusing images and applying for permissions can usually be found on publishers' websites, often in the context of an article. The text required by the publisher for authorised use is added to the caption if necessary. The recommended font size for this text is 10 pt to make the text stand out from the actual caption. In an accessible document, so-called alt texts are added to images and tables.

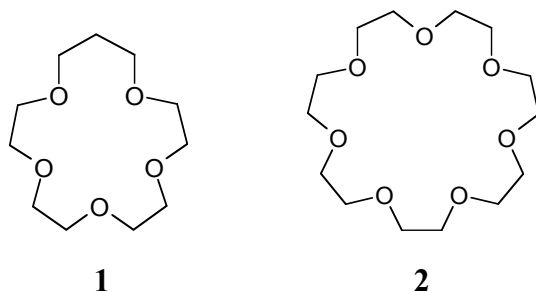


Figure 1. Two crown ethers, 16-crown-5 (1)² and 21-crown-7 (2).³

In the tables, each item to be presented should have a title row or column that also shows the unit of measure separated by a slash, if necessary. The values shown in the tables are given with reasonable accuracy. A common power or multiple of a unit can be placed in the header row or column. Whenever possible, an error range must be performed for the numeric values presented. A fifteen-unit rule is used to round number values and error estimates. The figures can be freely aligned by, for example, a decimal point, centered or aligned to the right edge of the cell.

A large table can be presented in landscape orientation, but the table must not be divided into multiple pages except in exceptional cases. Large and dense tables that are difficult to read should be avoided when drawing up tables. Additional information can be attached to the items shown in the table as footnotes in the table, so that the font size in the footnote can be smaller, for example 10 pt. It is usually a good idea to keep the style of the table clear and simple. Table 1 serves as an example of this.

Table 1. Standard molar entropy S_m° at 298 K temperature for some compounds and elements⁴

Substance (standard state)	S_m° / (J K ⁻¹ mol ⁻¹)
C (graphite)	2,4
Ag (crystalline)*	42,6
I ₂ (crystalline)	116,1
HBr (gas)	198,7
PCl ₃ (liquid)	217,1

*This is an explanation for silver.

4.3 Units and quantities

Units and quantities are reported in SI units. Acceptable exceptions are: Celsius degree (°C), litre (l), Ångström (Å), minute (min), hour (h), day (d), year (a), wavenumber (cm⁻¹), electron volt (eV). The number and its unit may not be divided into different rows. Line breaking can be prevented by using a binding space. Similarly, the text combines, for example, pairs in Figure 1, Table 1, Appendix 1 or Equation (1). Mathematical quantities are presented in italics the same way throughout the work in text, equations, graphs, and tables.

4.4 Tenses

A passive voice and the same tense are used logically throughout the text. In the experimental part, when presenting own work, passive imperfect is used: “*The reaction mixture was stirred for six hours.*” If the results of others are presented, the tense is passive perfect: “...*have presented...*”. General conclusions and the generally known fact are presented in the present tense: “The results show that the concentration increases...”

4.5 Nomenclature of Chemical Substances and Structures

Chemical substances and formula are named according to IUPAC rules. When the substance is mentioned for the first time, formula or schematic picture of a compound should also be given, unless the compound is generally known (for example water). Trivial names may be used if the name is in general use (e.g., acetone), but it may also be clarified with a systematic name when mentioned for the first time. With large and complicated systems, it may not be reasonable to use IUPAC names. In those cases, an agreed abbreviation or a number presented in the scheme of the structure should be applied. The chemical structures are drawn with a program, such as ChemDraw, using an ACS style or similar.

4.6 References

The principle of the use of literature references is that for every matter referred to in the text, and which cannot be regarded as generally known, there should be a reference to the original work. The reference indicates to the reader a source (book, scientific article, electronic file or presentation, etc.) that deals with the matter and can be easily found, where the reader can get background and additional information if necessary. The general principle is to use a first-time reference (primary note), but in some cases it is justified to refer to a source or handbook that is easier to find and later published. Such cases include publications written in less common foreign languages, very old sources, or sources that are difficult to access.

It is only very rarely necessary to use a direct text citation. Image citation, on the other hand, is a common and allowed way to republish information. To do this, a source reference is required

in the figure caption. Depending on the publisher, a permission to use the image is often required to be added in the caption. For example, the formatting retrieved by the RightsLink function “Published with permission from Ref. 5. Copyright (2025) American Chemical Society.” If the source is published under a CC license, usually it is enough to mark only the type of license, for example, "CC BY-NC-ND" or a similar link.

The usage of Zotero, Mendeley or other reference manager program is highly recommended. Also, reference management of the text editor can be used. Open Science Centre organizes courses for using reference managers, databases and searching for information.

References are entered in the text as superscripts, numbered in the order of occurrence, after the full stop of the sentence addressing the topic of the reference(s). If the whole paragraph is based on one reference or the paragraph is compiled from several references, the reference(s) can be presented at the end of the section.

Example: This is an example sentence, or an end of a paragraph, based on multiple references.^{7,11-15,23}

A reference number can also be placed at a place other than the end of a sentence, if, for example, the same statement refers to several separate and collected items from different sources.

Example: The earlier studies show that the compounds can be used as cancer medicine,⁷ medical materials,⁸ conductive materials¹⁰ and in analytics¹¹.

If the name of the author is mentioned in the text, the reference is placed immediately after the name.

Example:

- i) If there is only one author: “Shimada² has observed...”
- ii) If there are two authors: “Armarego and Reece¹ have observed...”
- iii) If there are three or more authors: “Knabe *et al.*⁸ have observed...”

Note that *et al.* is usually written in italics.

If the topic is relatively common and could be found in various references, only one of the references can be chosen.

Example: “As generally known (e.g., see Ref. 7) ...”

The list of references should contain sufficient information for a reader to find the original reference. Particular attention should be paid to the names of the authors, the titles of the articles and bibliographical information. The list of references should contain the names of all authors, i.e., *et al.* cannot be used in the list of references. All references are presented in a uniform style, as defined in the following subchapters. You can implement the citation style in Word by opening the Zotero plugin and selecting ‘University of Jyväskylä Department of Chemistry (English)’.

4.6.1 Scientific Articles as References

1. A running number and full stop.
2. The complete last name, the initial letter(s) of the first name(s) of the author(s), possible Jr. or Sr, separated with a comma. In case of more than two authors, the names are separated with a semicolon (;) except for the last two names that are separated by ‘and’.
Example: Klimberg, M., Jr.; Klimberg, M. A., Sr.; Stilton, D. and Rehn, O.
3. The title of the article as it is written. The general rule is that the words of the title are written without capitalization of the first letters, except for the first word. Depending on the chosen reference style, the title of the article is not necessarily shown. Consult your supervisor if the titles are needed or not.
4. The name of the journal is written with *italics*. The names of the journals are abbreviated according to CAS Source Index (CASSI; cassi.cas.org).
5. The year in **boldface**, *volume number in italics*, the first and the last page number separated with a dash, and full stop. Not all articles have actual page numbering, only the article number (see example 3). Note also that some journals do not have a volume number (for example, some RSC publications). The issue number is presented only if the page numbering in each issue of a volume starts from 1.

Example: *J. Appl. Cryst.*, **1994**, 27, 4–11.

Examples:

1. Armarego, W. L. F. and Reece, M., Quinazolines XXV. The synthesis of 8-chloro-2-[4-(2-furoyl)-piperazin-1-yl]-6,7-dimethoxyquinazolin-4-amine hydrochloride (8-chloroprazosin hydrochloride), *Aust. J. Chem.*, **1981**, 34, 1561–1566.

2. Weißmann, G.; Kubel, H. and Lange, W., Untersuchungen zur Cancerogenität von Holzstaub. Die Extraktstoffe von Eichenholz (*Quercus robur* L.), *Holzforsch.*, **1989**, *43*, 75–82.
3. Liu, J. Z.; van de Walle, A.; Ghosh, G. and Asta, M., Structure, energetics, and mechanical stability of Fe-Cu bcc alloys from first-principles calculations, *Phys. Rev. B*, **2005**, *82*, 144109.

4.6.2 Books and Theses (M.Sc. or PhD Thesis) as References

1. A running number and full stop.
2. The name(s) of the author(s) as written in the references to scientific articles. If a book is a collection of articles/chapters written by different authors, and has an editor, both the author(s) and the editor(s) are mentioned, see example 8 below.
3. The name of the book in italics.
4. The edition (if not the first), the publisher, the place of printing, country, the year of publishing.
5. The first and the last page number, for example, pp. 19–31. If the whole book is a reference, no page numbers are needed.
6. If different parts of the same book are used, the referred parts are indicated with a letter, see example 6 below.

Examples:

4. Shriver, D. F. and Atkins, P. W., *Inorganic Chemistry*, 3rd ed., Oxford University Press, Oxford, 1999, pp. 500–515.
5. Ebersson, L., *Organisk kemi*, Almqvist & Wiksel Förlag AB, Stockholm, Sweden, 1969.
6. Sjöström, E., *Wood Chemistry, Fundamentals and Applications*, 2nd ed., Academic Press, San Diego, USA, 1993. a) pp. 2–14, b) pp. 67–84, c) pp. 101–104.
7. Jeffrey, G. A. and Saenger, W., *Hydrogen Bonding in Biological Structures*, 2nd ed., Springer-Verlag, Berlin, Germany, 1994.
8. Dence, C. W., The determination of lignin, in Lin, S. Y. and Dence, C. W. (eds.), *Methods in Lignin Chemistry*, Springer-Verlag, Berlin, Germany, 1992, pp. 32–61.

9. Pazhouhan Fekri, A., *Synthesis of an antiaromatic circulenophane*, M.Sc. thesis, University of Jyväskylä, Department of Chemistry, Jyväskylä, 2020.
10. Leppänen, J., *Design and Synthesis of Entacapone Prodrugs and L-Dopa – Entacapone Codrugs*, Kuopio University Publications A. Pharmaceutical Sciences 59, PhD thesis, University of Kuopio, Faculty of Pharmacy, Department of Pharmaceutical Chemistry, Kuopio, 2002.

4.6.3 Presentations or Posters as References

Oral and poster presentations are sometimes published as a compilation or an abstract book (e.g., Conference Proceedings, or Proceedings, abbreviated as *Conf. Proc.* or *Proc.*). When these are used as a reference, the time, the place and the organiser of the conference are given. Typical abbreviations used in this context are *Int.* or *Intl.* for International and *Symp.* for symposium. For example, *Int. Symp. Pulping Chemistry*.

Examples:

11. Hyötyläinen, J., Characterization of lignin and humic compounds in receiving water system of pulp industry. Use of model compounds and CuO-oxidation-HPLC-method, *Conf. Proc. TOCEON 93, Toxic Compounds in Environment*, Znojmo, Czech Republic, 1.–3.6.1993, pp. 78–84.
12. Ristolainen, M. and Alén, R., Characterization of effluents from TFC bleaching of hardwood kraft pulp, *Proc. 1996 Int. Pulp Bleaching Conf.*, Book 2, Washington, D.C., USA, 14.–18.4.1996, TAPPI Press, Atlanta, USA, 1996, pp. 523–525.

4.6.4 Other References

Unofficial sources: Other references, that should be mentioned, can include essential but unofficial sources, such as an interview with an expert or e-mail correspondence with an expert.

Examples:

13. Paasivirta, J., oral statement 24.7.1996.
14. Nissinen, M., e-mail correspondence, 14.3.2010.

Computer programmes: If a non-trivial, but essential computer programme is used in the work a reference should be given. The name of the programme is written with capital letters. Many programmes used in research have their own, specific reference. The reference is placed immediately after the name of the programme.

Examples:

15. Sheldrick, G. M., *SHELXL-97: Program for Crystal Structure Refinement*, University of Göttingen, Germany, 1997.
16. Sheldrick, G. M., *Acta Crystallogr., Sect. A: Found. Crystallogr.* **2008**, 64, 112–122.

Patents:

17. Kanbe, S.; Shinazaki, Y.; Takei, K., Substituted phenyl benzoates and their use in liquid crystal composition, *Ger. Offen*, 3,001,423, 26.1.1979.
18. Pystynen, J.; Luiro, A.; Lotta, T.; Ovaska, M.; Vidgren, J., Catechol derivatives, *US Pat.*, 6,150,412, 2000.

A series of a research institute or a university:

19. Häkkinen, J.; Malk, V.; Lehtonen, K. K.; Leppänen, M., Monitoring and assessment of environmental impacts of chemical spills in the Baltic Sea, Finnish Environmental Institute (SYKE), 17.9.2018, Reports of the Finnish Environment Institute 23/2018.

Web sites, online databases: In addition to the traceable web address (URL), the reference must contain an informative heading and the publisher's name. The access date must be given in parentheses at the end of the reference.

For example:

20. Agilent 7890 Series Gas Chromatograph: Advanced Operation Manual, Agilent Technologies Inc., <https://www.agilent.com/cs/library/usermanuals/public/G3430-90015.pdf> (28.5.2020).
21. Compendium of Chemical Terminology, International Union of Pure and Applied Chemistry (IUPAC), <https://goldbook.iupac.org> (28.5.2020).

5 ADDITIONAL INSTRUCTIONS

The use of artificial intelligence must follow the University's policies. It is good to discuss the use with the supervisor. The use of artificial intelligence or language models in work must be clearly reported in the preface, for example: ‘Artificial intelligence has not been utilised in this work.’ or “This work has made use of artificial intelligence in the following way: ...” The description should mention the tool used (KEENIOUS, Copilot, ChatGPT, etc.) and clearly distinguish what the artificial intelligence has been used for, e.g., literature search, introduction, conclusions, etc. It should also be clarified how the tool was used. For example, “Sources were retrieved using KEENIOUS by entering the topic of the thesis as a keyword” or “Materials were summarized to support the work by assigning Copilot the task: ‘Review the following text and state what its main findings are.’ ”

Instructions on the accessibility of theses, i.e. the consideration of the visually impaired reader with alt-texts and styling, are provided on the university’s website. The completed theses are sent to evaluation via the Turnitin plagiarism recognition program. The work is loaded into the Moodle workspace of the course, which you can access after enrolling in the course at Sisu. The Turnitin program produces a report of the document, which is examined while grading of the thesis. Turnitin can also be used during the writing process to support supervision. More information about the Turnitin program can be found at <https://www.jyu.fi/digitalservices/en/help/turnitin>. The approved work will be uploaded to the university's JYX publication archive. Ask your supervisor for more information about the evaluation of the thesis and the matters related to applying for a degree.

It is the responsibility of each researcher and thesis author to understand how to comply with good scientific practice. Principles for research integrity and instructions for avoiding fraud can be reviewed from JY’s website (<https://www.jyu.fi/en/research/responsible-science>). Support for writing the academic thesis in English is available through University’s Center of Multilingual Academic Communication (Movi) courses. For more information, visit the www-pages of Movi.

(The underlying watermark is a pdf file that you can obtain from the personnel.)

KEMIAN LAITOS
JYVÄSKYLÄN YLIOPISTO

Title of the Thesis
Font Helvetica 18 pt bold, centred

Masters' thesis

University of Jyväskylä

Department of Chemistry

dd.mm.year

Author Name



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Using LaTeX

LaTeX users may use common sense and own experience for the layout. Please follow the general instructions on the order of presentation aiming at a clear outcome.

Example of settings to start with:

```
\documentclass[a4paper, 12pt, english]{article}

\usepackage[T1]{fontenc}
\usepackage[latin1]{inputenc}
\usepackage[english]{babel}

\usepackage{overcite}
\usepackage{graphicx}
\usepackage{epstopdf}
\usepackage{url}
\usepackage[final]{hyperref}

\usepackage{booktabs}
\usepackage{amsmath, amssymb}
\usepackage{stmaryrd}

\usepackage[top=2.5cm, bottom=1.5cm, inner=2.5cm, outer=2.5cm]{geometry}
\usepackage{tikz}
\linespread{1.25} % corresponds to 1.5 line spacing in Word
\parindent0pt
\parskip1.5ex

\usepackage{fancyhdr}
\fancyhf{}
\fancyhead[C]{thepage}
\pagestyle{fancy}
\renewcommand{\headrulewidth}{0pt}
\usepackage[margin=10pt, labelfont=rm, labelsep=period]{caption}
\usepackage[version=3]{mhchem}

\makeatletter
\renewcommand\@biblabel[1]{#1.}
\newcounter{reaction}
\renewcommand\thereaction{R\arabic{reaction}}
\newcommand\reactiontag{\refstepcounter{reaction}\tag{\thereaction}}
\newcommand\reaction@[2]{}{\begin{equation}\ce{#2}%
\ifx\@empty#1\@empty\else\label{#1}\fi%
\reactiontag\end{equation}}
\newcommand\reaction@nonumber[1]{\begin{equation*}\ce{#1}%
\end{equation*}}
\newcommand\reaction{\@ifstar{\reaction@nonumber}{\reaction@}}
```

\makeatother

\newcommand{\onlinecite}[1]{\hspace{-1 ex} \nocite{#1}\citenum{#1}}

\renewcommand{\thepage}{\roman{page}}

\begin{document}

\begin{titlepage}

\tikz[remember picture,overlay] \node[opacity=0.99,inner sep=0pt] at (current page.center)
{\includegraphics[width=\paperwidth,height=\paperheight]{kandin-kansilehti.pdf}};

\vspace{10cm}

\begin{center}

{\Huge {\bf Title of the Thesis}}

\end{center}

\vskip 4cm

\begin{flushleft}

\hspace{7cm} University of Jyv"askyl"a \\

\hspace{7cm} Department of Chemistry \\

\hspace{7cm} MSc Thesis \\

\hspace{7cm} 02.02.2020 \\

\hspace{7cm} Name of the Author

\end{flushleft}

\end{titlepage}

%\thispagestyle{empty}

\newpage

\mbox{}

\newpage

\section*{Abstract}

\addcontentsline{toc}{section}{Abstract}

text

\newpage

\section*{Preface}

\addcontentsline{toc}{section}{Preface}

text

\include{abbreviations} % a separate text file named abbreviations.tex compiles here

\newpage

\tableofcontents

\cleardoublepage

\pagenumbering{arabic}

```
\section{Introduction}
text

\section{Theory}
text
\subsection{Theory subchapter}
text
\subsubsection{Subchapter of a subchapter }
text
%et cetera
\include{topicX}
%et cetera
\section{Conclusions}
text

\bibliographystyle{unsrt}
\bibliography{my-bibtex-refs}
\addcontentsline{toc}{section}{References}

%\begin{thebibliography}{99}
%\bibitem{Guo}
% Guo, R.; Tianqing, L. and Weili, Y., \emph{Langmuir}, {\bf 1999}, \emph{15}, 624--630.
%\end{thebibliography}

\section*{Appendices}
\begin{itemize}
\item[APPENDIX 1:] Caption for the first appendix.
\item[APPENDIX 2:] etc.
\end{itemize}

\end{document}
```

When using BibTeX, i.e., an external source library, the format that is printed on the document depends on the style package selected, which in this example is unsrt. Making a literature list in the format of the Department of Chemistry is possible by editing the bibliography section. BibTeX makes a .bbl-ending auxiliary file in the directory, which can finally, after everything else is done, be copied into the place of the \bibliography call and edited therein. Thus, the order of citations in the list remains the same as the order in which the citations occur in the text.