A Practical Guide to MSc Thesis Writing

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Abstract

Writing a clear, well-structured, and coherent thesis is an intellectually demanding task, but one of great educational value. This guide aims to help MSc students in this endeavor. It does not prescribe a rigid style or structure; rather, it offers practical suggestions to approach the writing process with greater awareness, rigor, and independence.

Contents

1 Introduction

The master's thesis represents a fundamental milestone in the university degree programme: it is the point at which students are required to develop a topic independently and in a structured manner, applying the knowledge they have acquired, exploring specific issues in depth, formulating original reflections, or developing a project. A thesis is not merely a final product, but a formative process that involves research, organisation of content, and writing.

This guide is intended to provide practical guidance and useful advice for students preparing to write their master's thesis. It does not propose a rigid template; rather, it offers tools to help students write clearly, coherently, and thoughtfully, enhancing the work they have undertaken and making it readable, understandable, and assessable for the reader.

The thesis is a personal piece of work whose purpose is to present and enhance the conducted research project through the analysis, development, and critical interpretation of results, with the aim of constructing a solid and coherent argument. At the core of every strong thesis lies a meaningful question or a well-formulated problem, which makes clear from the outset why the topic is worth addressing and why seeking an answer matters. Demonstrating the relevance of the chosen topic is essential: it helps the reader to understand the purpose of the work and guides the student in developing the thesis.

Moreover, the thesis constitutes the primary basis for assessment by the supervisor, the second marker, and the degree examination board, and it may become an important reference for those intending to pursue doctoral studies or a professional path aligned with their field of study.

For these reasons, students are strongly encouraged to devote great care to the preparation of their thesis, allocating sufficient time to the collection of materials, the writing process, and final revision. Thesis writing also represents a valuable

educational opportunity in terms of developing argumentative, methodological, and communicative skills.

The importance of not becoming discouraged

It is entirely normal to feel anxious or overwhelmed at the prospect of writing a thesis. For many students, this is their first experience of producing an extended and structured piece of writing on a specialist topic, and the responsibility associated with such a task can naturally give rise to doubts or uncertainty.

This guide is also intended to help reduce that sense of disorientation by providing concrete tools and practical suggestions to enable students to approach the writing process with greater confidence, method, and awareness.

2 Before you begin

Given the greater length and complexity of a thesis compared, for example, to a placement or internship report, careful preliminary planning is essential. Having a clear outline (often referred to as a "working plan") makes it possible to organise content, arguments, and sources logically across the chapters, avoiding unnecessary repetition and inconsistencies.

Even before starting to write, it is important to prepare the foundations of the thesis with care. Since research work takes time, it is advisable to take notes throughout the entire process, recording not only technical or theoretical developments, but also the supervisor's suggestions, clarifications, and observations. This practice helps to keep track of decisions made, facilitates the writing phase, and makes it easier to reconstruct key steps and justify the choices made during the course of the work.

3 Where to start

A recurring question among students is: "Is there a template (a standard structure) to start from?" The short answer is no. The style and organisation of a thesis may vary depending on its type. For an overview of possible structures, readers are referred to Section 8 of this guide. In any case, it is important to maintain a consistent style throughout the thesis.

Editing tools such as LaTeX[1] or LibreOffice/Word can be used, as they provide basic templates to build upon. The use of LaTeX is particularly recommended for theses that include mathematical formulae, source code, or complex tables. For those who choose LaTeX, the Overleaf platform [3] is a good starting point, offering a wide range of free templates.

4 Quantity or quality?

The most frequently asked question is: "How long should a thesis be?" Unfortunately, there is no single, definitive answer. There is no optimal length that applies to all cases: much depends on the nature of the topic, the level of detail required, and purely typographical factors such as the font used, line spacing, and the inclusion of images or sections of source code.

What truly matters is not the number of pages, but the ability to provide a clear, complete, and well-proportioned account of the work carried out, avoiding both excessive brevity and the accumulation of unnecessary information.

The following sections provide some general guidelines, both quantitative and qualitative, intended to help students orient themselves during the thesis writing process.

From a quantitative perspective:

- the typeface used should be readable (such as Times New Roman or Arial), with a minimum size of 12 pt and single line spacing (1.5 spacing is preferable); footnotes and long quotations should be at least 10 pt;
- all images should be accompanied by alternative text descriptions;
- to facilitate navigation, structured styles should be used (headings, paragraphs, lists);
- as a general guideline, the recommended length of the thesis is approximately 50 pages;

[1] For Italian-language resources and guides on LaTeX, readers may consult the website of the Italian TeX Users Group (GuIT)[2], which provides introductory documentation and a support forum.

- there is no maximum length, but before exceeding 150 pages it is advisable to reflect carefully on the essential nature and effectiveness of what has been written.

From a qualitative perspective:

- The thesis style should be clear and reasoned, closer to a scientific and/or technical report than to a personal narrative. It is not enough to list what was done: it is important to explain the rationale behind choices, link the work to the aims of the thesis project, and show how the results were obtained;
- the text should read smoothly and be concise, avoiding unnecessary repetition;
- the text should include the information the reader needs to understand and appreciate the work carried out;
- the text should be well structured, so that the reader can easily locate and focus on the content of interest;
- it is preferable to use common, readable fonts, avoiding unusual typefaces that can make reading difficult;
- it is advisable to justify the text (aligning it to both the left and right margins), leave a blank line to separate paragraphs that are not directly connected, and use a 3–4 space indent at the beginning of each paragraph;
- limit the use of bold and italics, as they may make the text harder to read;
- underlining is generally discouraged;
- tables, figures, and code fragments should: (i) be accompanied by a caption, (ii) be appropriately discussed in the main text to clarify their meaning, and (iii) be properly referenced in the body of the thesis;
- use explicit references for figures and tables (e.g., Table 3.1) and avoid vague wording such as "the following" (as in "the figure below");
- all acronyms introduced should be spelled out (e.g. Internet of Things (IoT)) and only the first time they appear in the text. In LaTeX, there are dedicated packages for the management of acronyms, such as `acro`. Figure 1 shows a simple example of its use.

```
\begin{verbatim}
\usepackage{acro}

\DeclareAcronym{iot}{
  short = IoT ,
  long  = Internet of Things
}
...
\begin{document}
...
The \ac{iot} paradigm is widely used.
Later references to \ac{iot} are abbreviated.
```

Appearance:
The Internet of Things (IoT) paradigm is widely used. Later references to IoT are abbreviated.

Figure 1: LaTeX package `acro`: usage example.

5 Language

If the thesis is written in English, and English is not the author's mother tongue, even greater attention is required with regard to linguistic accuracy, clarity of expression, and the use of an appropriate academic style. Attention should also be paid to typographical conventions, which may differ slightly from those used in Italian. Finally, it is important to avoid literal translations from Italian.

6 Originality

The thesis must be an original piece of work. Whenever material taken from other sources is included, it is essential to clearly indicate which parts are derived from those sources and, where possible, to identify the author, including in the case of material downloaded from the internet or produced through automatic (or semi-automatic) translation.

Presenting someone else's work as one's own, without proper acknowledgement, is not ethically acceptable and must be carefully avoided. Students are also encouraged to check the coherence and accuracy of any material introduced into the thesis, especially when it involves automatic translations. The same rules apply to the inclusion of examples, images, figures, and tables.

7 Generative artificial intelligence

Generative artificial intelligence tools (such as ChatGPT, GitHub Copilot, or similar systems) may provide useful and flexible support at various stages of thesis preparation, both for text writing and for code development.
These tools may be helpful as writing support to:

- improve the fluency and clarity of the text;
- produce preliminary summaries of documents or materials;
- suggest ideas during the brainstorming phase or assist in structuring the outline;
- check coherence across sections or support final proofreading.

In the case of code writing, AI tools may also help to:

- propose initial structures or reusable examples;
- explore alternative solutions to technical problems;
- clarify the use of unfamiliar libraries or syntax;
- identify common errors or suggest improvements.

In all cases, it is essential that:

- **responsibility for the content remains entirely with the student**: the thesis must reflect personal work and understanding, not a simple automatic rephrasing;
- any generated content is carefully verified, reworked, and critically understood by the student;
- the methods used to verify the results are briefly described (for example, comparison with the scientific literature, human review, or the use of additional independent sources);
- in the case of code, any applicable licence constraints are respected and the included code is checked (to avoid errors and vulnerabilities), justified, and fully understood.

AI tools can be valuable forms of support, comparable to advanced spell-checkers or external consultation, but they do not replace the writing process nor the individual project work.

Declaration on the use of generative AI tools If generative AI tools are used, their use must be declared transparently, specifying at which stage they were employed and for what purpose (for example: "ChatGPT was used for stylistic revision of Chapter 3"). This declaration should not appear within the main body of the thesis, but should be placed separately and clearly visible, for example:

- at the end of the introduction, immediately following the description of the thesis structure; or
- on a dedicated page at the end of the document; or
- in a dedicated section of the acknowledgements, if included.

8 Structure of the thesis

The structure of a thesis may naturally vary depending on its type (literature-based, research-oriented, or experimental) and on the chosen approach. In general, however, it consists of the following parts, in this order:

1. a title page (including the title, the student's name, the supervisor's name);
2. an abstract, that is, a brief overview of the entire thesis;
3. a table of contents, listing the chapters and numbered sections;
4. an initial section (Introduction), which briefly presents the context and objectives of the thesis work, followed by an outline of the structure of the document;
5. one or more chapters presenting the background and preliminary knowledge (theoretical or technical) on which the work is based, including any technologies, tools, languages, or environments adopted;
6. one or more central chapters describing the development of the thesis work and the objectives achieved;
7. a final section (Conclusions) providing a reasoned summary of the work carried out, the results obtained, and possible future developments;
8. the bibliography (listing the documents and websites consulted);

9. one or more appendices (optional), if it is considered useful to include additional material, such as source code, complex examples, or more detailed documentation of specific parts of the work.

Each of these sections and each chapter must begin on a right-hand (odd-numbered) page. If a section or a chapter ends on a right-hand page, the following left-hand (even-numbered) page must be left blank.

Finally, it should be noted that providing a printed version of the thesis is not mandatory: submission in digital format only is required. Should the student nevertheless wish to have a printed copy, a copy shop may be contacted to ensure the correct page layout and margin settings.

9 What should be included in the abstract?

The abstract is a crucial part of the thesis, as it will certainly be read by the members of the examination committee and by anyone who picks it up. Its purpose is to present the work and its results in a way that enables the reader to decide whether to proceed further.

10 What should be included in the introduction?

The introduction plays a fundamental role in presenting the subject of the thesis to the reader (in particular, the second examiner and the degree examination board) and in quickly framing its context.

It is therefore appropriate to briefly describe the field in which the thesis is situated and to clarify the objectives of the thesis work, why they are significant, how they have been addressed and what has been achieved.

The introduction should conclude with a paragraph describing the structure of the thesis, outlining the content of each chapter.

11 What should be included in the conclusions?

The concluding chapter represents a central part of the thesis. It summarises the main points discussed, highlights the objectives achieved, and compares them

with those found in the literature, in order to show to what extent the work contributes to the scientific or technical discussion on the topic. It is also the appropriate place for a critical reflection on the effectiveness of the adopted approach and on the adequacy of the tools and methodological choices.

Finally, it is useful to acknowledge any limitations of the work carried out and, where possible, to propose future developments or suggestions for further research.

Together with the introduction, it is the most important chapter of the thesis, as it allows the student to draw together the various strands of the work and to give the overall journey a coherent and well-motivated meaning.

12 What about the other chapters?

Each chapter should:

- open with a brief introduction stating its purpose and briefly outlining the topics addressed;
- conclude with a short paragraph summarising the main points discussed in the chapter and establishing a logical connection with the following chapter.

Depending on the objectives of the thesis work, it is appropriate to include a description of the state of the art, that is, a concise overview of what has already been done in the same field.

This helps to contextualise the work, acknowledge existing contributions, and clarify how the thesis fits within the broader landscape of the literature or of the available solutions.

13 How to compile and cite the bibliography

The bibliography should contain the complete list of sources consulted, considered significant for the work carried out, whether they are articles published in scientific journals or conference proceedings, books, monographs, textbooks, or websites used to deepen the topics discussed and the technologies or tools adopted.

It is recommended not to create a separate section labelled “Webography” or the like: websites can and should be included in the bibliography together

with the other sources. In the case of online sources, it is good practice to also indicate the date of last access, since web content may change over time or become unavailable.

For each bibliographic entry, every effort should be made to provide all the information that may be useful to locate the source, such as the full title, author(s), publisher, year of publication, and the URL for documents available online.

Bibliographic references can be ordered in two ways: (i) alphabetically by author (and, in the case of multiple works by the same author, by year of publication), or (ii) in the order in which the citations appear in the text. The first method is, however, the most common and therefore preferable.

Each reference should be associated with a unique identifier used to cite it in the text, enclosed in square brackets, for example: [3]. Although alphanumeric identifiers are also common, it is recommended to use simple numeric identifiers, assigned progressively to the items in the list (starting from 1). An example list of bibliographic references is shown in Figure 2.

> As stated in [7], the software architecture ...

When multiple references are cited together, it is recommended to use a single pair of square brackets to enclose them all, separating them with commas. For example:

> As stated in [7,11,12], the software architecture ...

The bibliography is usually placed at the end of the thesis. Students may decide, according to their preferences, whether to place it before or after any appendices.

Clearly, every reference listed in the bibliography should be cited in the thesis, and all references cited in the thesis should appear in the bibliography. LaTeX and other document preparation systems provide useful features to manage citations correctly and to prevent common errors, such as missing references, duplicate entries, or inconsistent numbering. Students are encouraged to consult the documentation of their chosen system in order to make the most of these features.

14 Revising to improve

Writing in an electronic format tends to focus attention on the paragraphs immediately adjacent to the one being edited (either preceding or following it), thereby

References

[1] BlueJ, Ambiente di sviluppo. http://www.bluej.org

[2] C. Horstmann, Concetti di Informatica e Fondamenti di Java settima edizione, Hoepli, 2020.

[3] Java, Distribuzione Sun. http://java.sun.com

Figure 2: Bibliography example

reducing the overall perspective and increasing the risk of losing the logical coherence of an entire section or chapter.

Only a careful and complete rereading of the thesis can reveal such inconsistencies and allow them to be corrected appropriately. To this end, it is advisable to leave a couple of days before rereading the text, in order to approach it with greater detachment and a fresh perspective.

For revision to be truly effective, it is useful to follow a few simple but important rules:

- proceed sequentially (from the title page through to the bibliography and any appendices);
- avoid interruptions (so as not to break the logical coherence of the revision);
- maintain a high level of concentration;
- be critical (if a passage is unclear even to the person who wrote it, it should be reformulated; otherwise, its meaning will be entirely unclear to most readers).

The thesis should also be accessible to readers who are not deeply familiar with the specific field of the work. For this reason, it is recommended to ask at least two people with different backgrounds to read preliminary drafts of the thesis: ideally, one with good knowledge of the subject and another with only a general understanding of it. Be open to their suggestions, and if someone points out that a passage is unclear, do not assume that it is in fact clear: often, it is not. In such cases, reformulation is the better option.

Finally, almost all modern text editors include (semi-)automatic spell-checking tools, which can facilitate the revision process and help correct typographical errors or slips more easily.

15 Typographical inaccuracies

In digital documents, it is easy to introduce small typographical errors and inaccuracies, which are often not very noticeable when reading on a screen but become immediately evident when reading printed copies. These are common oversights which, although not serious, may give the reader an impression of carelessness. Some examples of frequently occurring errors are listed below.

- **Incorrect spacing around parentheses**: always leave a space before an opening parenthesis, but not after it. Do not leave a space before a closing parenthesis. Leave a space after a closing parenthesis unless it is followed by punctuation (such as a full stop or a comma); as in the previous sentence.
- **Incorrect spacing around punctuation**: do not leave spaces before punctuation marks. Always leave a space after a punctuation mark; as in the previous sentence.
- **Incorrect spacing for footnotes**: do not leave a space before a footnote reference (the superscript number). If the reference is placed next to a punctuation mark, the punctuation mark should precede the reference.
- **Overuse of acronyms**: avoid using too many acronyms, as they may make the text harder to read.
- **Inconsistent automatic translations**: if automatic translation tools have been used, it is strongly recommended to carefully review the generated text before including it in the thesis, as such tools may introduce errors in meaning or inconsistencies.

16 Conclusions

This guide has provided practical guidance and advice for writing the MSc thesis, focusing in particular on:

- the aims of the report and its educational value;
- the recommended structure and the role of each section;
- the characteristics of the writing style, which should be clear, well-argued, and technical;

- formal aspects, such as stylistic consistency and the correct use of punctuation, accents, spacing, and source citation;
- the importance of careful rereading and final revision;
- the responsible use of generative AI tools, which must be transparently declared if employed;
- a number of practical considerations to ensure good readability and accessibility of the text, especially in digital format.

The aim is not to impose rigid rules, but to offer a useful tool to help students approach writing with greater awareness, effectiveness, and independence, taking into account both the content and the intended reader. Writing a good thesis requires commitment, time, and attention, but it also represents a valuable opportunity to reflect on the technical and/or scientific contribution and to highlight its outcomes. Finally, writing the report is, in all respects, an exercise in technical writing: a formative activity that helps develop writing skills which will also be useful in the future, both in the preparation of the master's thesis and in the drafting of technical documentation, project reports, or professional presentations in a professional context.

Further reading For guidance and further study, there are numerous manuals and guides on thesis writing. A classic reference in Italian is *Come si fa una tesi di laurea* by Umberto Eco [1]. For writing in English, see [4].

References

[1] Eco, U.: Come si fa una tesi di laurea. La Nave di Teseo (2017)

[2] Gruppo Utilizzatori Italiani di TeX: Sito ufficiale del GuIT. https://www.guitex.org/home/, ultimo accesso 8 novembre 2025

[3] Overleaf: Overleaf - online LaTeX editor. https://www.overleaf.com/ (2025), last access novembre 8, 2025

[4] Strunk, W., White, E.B.: The elements of style. https://www.bartleby.com/lit-hub/the-elements-of-style/ (nd), ultimo accesso 8 novembre 2025