

Guidelines for the CONDUCT OF THE MASTER'S THESIS

The final exam constitutes the final and mandatory step in the career of all university students. It consists of the public discussion of a technical-scientific paper (the **Master's Thesis**), carried out under the guidance of a professor (the **Supervisor**).

The effort required in carrying out this work is all the more useful and productive, the more the graduating student is convinced of the validity of the thesis as a moment of personal enrichment and research. The thesis has a high educational value, as it constitutes the first occasion in which the student can contribute to the advancement of knowledge. It is a unique opportunity to measure oneself against a real deepening of a topic, even if very specific. The ability in carrying out the thesis lies not only in *problem solving*, but also in *problem setting*, that is, in searching for the correct way to define problems, identifying significant variables, and collecting fundamental data.

Bear in mind that the thesis offers the following possibilities:

- It allows, in general, to deepen content already present in the courses of the study plan.
- Unlike studying for exams, however, it is not configured as learning content and its relative application (e.g., exercises, problem solutions, etc.), but rather as a definition of the state of the art of a research strand and a contribution to the development of knowledge.
- It allows, in particular, to address and analyze a specific topic, which could be of interest from a professional point of view.
- It allows acquiring preparation complementary to the predominantly theoretical one obtained by following courses, deepening one's knowledge of particular tools and methodologies.
- It can be carried out in collaboration with external bodies (industries, research centers, foreign universities, etc.), especially for *theses connected with the internship* (see thesis types below).
- It can constitute a reference during the job search phase.

For the successful conduct of the thesis, a good rapport between the graduating student and the supervisor is desirable.

1. Types of theses and language

The generally accepted types of theses are the following two:

- ***Connected with the internship***: Illustrates/reports the results of a project carried out by the student during the curricular internship at a company or external body. 'Carried out by the student' means that the student contributed to elaborating (even as a member of a workgroup) a solution – whatever its state of progress, but preferably advanced – to a corporate problem.
- ***Bibliographic/speculative/research***: Based on the collection and analysis of documents and/or empirical data (laboratory, surveys, etc.). The thesis in this case can be based – though not necessarily – on an internship project carried out at a university laboratory.

For *theses connected with the internship*, the activity carried out during the internship should provide sufficient (and adequate) material to draft the thesis. Internships involving general activities usually DO NOT offer the possibility of deriving a thesis. To derive a thesis from the internship, an original project must be developed in the company in one of the disciplines of the Master's degree program.

For the Italian curriculum, the thesis can be written in either Italian or English at the candidate's discretion. The same applies to the presentation and discussion of the thesis. For the English curriculum, the thesis must be written and presented continuously in English.

2. Time required for the thesis

There are no precise rules to establish the time necessary for the thesis. It depends on various factors such as, for example, the type of thesis, the possibility of working full-time, the ease of finding material, etc.

The activity related to the thesis can be divided into three parts:

- Orientation phase (framing work and bibliographic research);
- Central phase (modeling, data collection, data analysis where relevant, and first drafts of chapters);
- Final phase (final drafting).

Generally, it is advisable to start the orientation phase at the latest when 1-2 exams are missing. This phase can be relatively long: the student must get a general idea of the topic and start a first bibliographic research. The orientation work can be carried out until the completion of the study plan ; after that, the central phase begins, for which full-time work is strongly recommended. Full-time work is almost always required in the case of a *thesis connected with the internship*.

As a guideline, the complete development of the thesis (central phase and final phase) requires a full-time commitment of **5-6 months**. For *theses connected with the internship*, formally the curricular internship requires presence at the company for 150 hours, but it generally lasts longer if linked to the thesis (**3-6 months**).

3. Bibliographic research

Bibliographic research is of decisive importance and is the starting point for any technical-scientific work and therefore also for the thesis. Normally, the first bibliographic indications relating to the topic treated are provided by the supervisor, but it is evident that it will be the graduating student's care to deepen their knowledge through the search for further bibliographic references.

There are three main "items" from which to find the information necessary for the development of the thesis:

- articles in journals;
- papers in conference proceedings;
- monographs (books).

Access to these is possible by consulting the archives of university libraries or consulting databases made available by research bodies or editors at a national and international level. In particular, note the address of the University Library System, a precious starting point for any research path: <https://biblio.unipd.it/>

Through the *Galileo Discovery* search engine present on the Home Page, it is possible to:

- consult the bibliographic material present in the various libraries of the University of Padua;
- search for and download articles in .pdf format (full text) of a specific journal (if access is enabled);
- search for and download articles in .pdf format on a specific topic by consulting various databases employing different search fields (title, author, ...).

Galileo Discovery was born specifically with the aim of facilitating the retrieval of information in the electronic resources of the University Library System.

Regarding economic-management themes, relevant databases and editors include the following:

Web of Science – <https://www.webofscience.com/>
Scopus – <https://www.scopus.com/>
EBSCO – <https://www.ebsco.com/>
JSTOR – <https://www.jstor.org/>
Elsevier – <https://www.sciencedirect.com/>
IEEE – <https://ieeexplore.ieee.org/Xplore/home.jsp>
Wiley – <https://onlinelibrary.wiley.com/>
Emerald – <https://www.emerald.com/>
Taylor & Francis – <https://www.tandfonline.com/>

To access these databases, it is necessary to connect to the university *Eduroam* network because there is an IP Address check at the time of access. For remote access, it is possible to follow the procedures illustrated at the following address: <https://biblio.unipd.it/en/search-tools/off-campus-connection>

Other useful links for bibliographic research are:

Catalogo Unico Biblioteche Italiane (to search for bibliographic material present in Italian libraries and possibly have it sent via interlibrary loan) – <https://opac.sbn.it/en-US/>
Google Scholar – <https://scholar.google.com/>

4. How to write the thesis

Before starting the actual drafting of the thesis, it may be appropriate to elaborate a synthetic outline (also containing a provisional table of contents) from which it is possible to deduce the objectives of the work, the path intended to be followed, the articulation of the thesis, and the rough contents of the individual chapters. This is a starting outline to be discussed with the supervisor and subject, obviously, to successive revisions becoming increasingly accurate as the level of depth increases. For *theses connected with the internship*, it is advisable to draft this outline as soon as the internship begins, or even earlier if possible, and share/agree upon it with the company tutor, in addition to the academic one (supervisor).

It is preferable to deliver parts of the thesis (e.g., chapters) to the supervisor as they are developed without waiting for the complete draft (preferably use editable formats like .doc). Be careful not to hand over parts of the work that are too raw and for which subsequent revisions are already planned. Furthermore, although it may seem superfluous, the necessity of performing a spell check and properly proofreading what has been written is emphasized. Finally, if sentences taken from works present in the literature (articles, books, etc.) are reported in full in the thesis, it is necessary to always cite the author's name and the source, and place such sentences in quotation marks.

The final structure of the thesis can be articulated, indicatively, in the following points:

- Title Page
- Acknowledgements (optional)
- Abstract (maximum one page)
- Table of Contents
- List of Tables (optional)
- List of Figures (optional)
- List of Symbols (optional)
- Introduction
- Chapter 1



- Chapter 2
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- Chapter n
- Conclusions
- Appendices (optional)
- References

Words of “dedication” of the thesis or particular epigraphs may find space in the first unnumbered pages.

Title Page

For the title page, use the templates (for theses in Italian or English) available at the following site: <https://stem.elearning.unipd.it/course/section.php?id=110122>. Note that the title page is never numbered.

Table of Contents

The Table of Contents must contain in detail the parts, chapters, sub-chapters, and any lower-level sections, with the relative page number. The pages containing the table of contents must be numbered with Roman numerals (I, II, III, IV, ...). The way the table of contents should be structured is shown below.

Abstract

1. Introduction

2. Title of the first chapter

 2.1 Title of the first sub-chapter of the first chapter

 2.5 Title of the fifth and last sub-chapter of the first chapter

6. Title of the sixth and last chapter

 6.1 Title of the first sub-chapter of the last chapter

 6.3 Title of the third and last sub-chapter of the last chapter

7. Conclusions

Appendix A

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Appendix D

References

Remember that all the different sections that make up the thesis work (Abstract, Table of Contents, List of Tables, List of Figures, List of Symbols, Introduction, various Chapters, Conclusions, Appendices, References) MUST always begin on an *odd-numbered page* – if the previous section ends on an odd page, insert a blank even page. The various sub-chapters of a single chapter should not begin on a new page but continue immediately after.

Abstract

The abstract is a brief summary of the thesis with a maximum length of 1 page. In it, the candidate must concisely expose:

- the topic/problem that was considered and its relevance;
- how the topic/problem was addressed;
- the main results achieved and the implications thereof (with any future developments).

The abstract must be informative and not a simple list of topics covered; from reading it, with an average preparation on the topic, one should understand if the work is of interest to those about to consult the thesis. The page containing the abstract IS NOT numbered.

Introduction

The introduction constitutes the first section of the thesis and extends what is contained in the abstract, orienting the reading better. Information that lies upstream, logically and chronologically, to the work carried out in the thesis should be inserted here. It essentially consists of the following points:

- explanation of the nature of the topic/problem considered;
- description of the main contents available in the literature regarding the topic/problem in question, accompanied by appropriate bibliographic citations;
- purpose of the work;
- indication of the methods of solving the problem or the gaps identified in the literature;
- schematic list of the content of the various chapters of the thesis work.

The introduction starts on page 1.

Body of the thesis

In this part, the actual work must be described, which, as mentioned, will be convenient to divide into chapters, sub-chapters, and possibly other sub-sections, numbered hierarchically and each with a title. Each chapter must treat a single topic or multiple closely related topics in an organic way; the subdivision of each chapter must respect a logical criterion, in the sense that the topics treated must follow one another in the same order in which they are conceptually connected.

It is advisable not to dwell on comments that can be included in the introduction or conclusions and on mathematical passages not essential for understanding the text – it may be appropriate to report these in the appendix. It may be useful to dedicate the first lines of each chapter to the description of the themes that will be addressed and the objectives of the chapter. A chapter cannot be too short, indicatively at least **10-15 pages**.

Figures and tables

The text of the thesis generally becomes much more comprehensive if explanatory figures/diagrams are used. It is necessary to insert a caption under each figure that allows understanding its meaning even without reading the content of the text. Figures must be numbered in progressive order, and it is appropriate that the numbering starts from each chapter. For example, following this criterion, the third figure of the second chapter must be indicated with: Fig. 2.3.

Tables must be numbered independently of figures, but with the same criterion: instead of the caption, the title is placed above the table.

Figures and tables must be recalled at least once in the text and must be inserted after such reference (as soon as possible). It is also necessary to provide a detailed description in the text of those tables/figures characterized by a certain complexity.

If the use of original figures and/or tables from other publications (books, articles, theses) becomes indispensable, it is necessary to cite the source (this applies even if the figure or table has been reworked).

Acronyms

If acronyms not in current use are employed, it is necessary to define them explicitly the first time they are used, and from that point on, the introduced acronym can be utilized. If many acronyms are used, it may be appropriate to insert, next to the list of symbols, also the list of acronyms.

Footnotes

Sometimes it is appropriate to report at the bottom of the page (and not at the end of the chapter) some clarification which, if inserted in the text, would interrupt its continuity. The numbering of footnotes is done with progressive numbers according to the order in which they are introduced. In the text, the indication of the notes is placed with a number in the form of a superscript¹.

Conclusions

The conclusions must be brief and composed of the following points:

- indication of what has been exposed and its significance;
- comparative analysis and critical comment of the results presented;
- motivated explanation of omitted or not deepened parts;
- indication of possible further developments.

Appendices

In order to make the reading of the body of the thesis more fluid, it may be appropriate to report in the appendix:

- proofs of theorems;
- tables with the results of measurement campaigns whose graphs are inserted in the body of the thesis;
- listings of calculation programs;
- other.

References

Bibliographic references relating to journal articles, conference proceedings, books, websites, etc., must be inserted in the text using a pre-established *citation style*. Citation styles typically used in the economic-management field are:

APA (American Psychological Association)

Harvard

Chicago B (Autore-data):

IEEE (Institute of Electrical and Electronics Engineers)

Once a citation style is chosen, the same must also be used to format the References section placed at the end of the thesis work, where the complete data of the bibliographic references must be reported. Regardless of the chosen style, in the case of websites, it is appropriate to report, in addition to the page title, the Internet address and the date of last consultation of the website.

Format of the thesis

The thesis must be drafted on A4 sheets and pages must be written on both sides. For page formatting, it is suggested to adopt single or 1.5 line spacing, and margins between 2.5 and 3 cm. For the font, an appropriate choice could be *Garamond* or *Times New Roman*, with the size varying between 12 and 14 pt.

Upload and printing of the thesis

It is not possible to upload the thesis to *Uniweb* without receiving formal approval from the supervisor. To this end, it is necessary to send the copy deemed definitive to the supervisor. Before sending the file, verify that the indications previously recommended have been respected.

¹ Example of footnote.

It is suggested to agree with the supervisor on the number of copies to be printed.

5. How to present the thesis

The graduation exam consists of the presentation and discussion of the thesis in front of the *Graduation Commission*, formed by the supervisor and other professors belonging to the Degree program. During the graduation session, theses are discussed one at a time, according to a pre-established order communicated to the candidates well in advance.

The presentation

The candidate must summarize the thesis in a synthetic, simple, and clear manner. Bear in mind that in the Commission usually only the supervisor knows the topic specifically, while the other commissioners may not be experts on the topic treated. It is therefore appropriate that the exposition touches the essential points, aided by figures, diagrams, and key phrases. It is suggested to highlight:

- what you set out to do and why you chose that topic;
- how you carried it out, highlighting the original contents and personal contributions;
- the results obtained and their importance.

It is a good rule to prepare the text of the presentation, rehearse it aloud with the PowerPoint slides, and verify the timing (see below). It is not mandatory to illustrate the entire thesis work in detail, nor to employ the same succession of arguments chosen for the drafting of the thesis. It is preferable to dwell more on the specific and qualifying arguments of the work done, particularly on the original ones. Obviously, the candidate must be ready to clarify even the details not deepened if these are requested by the commissioners during the discussion.

The thesis work is presented with the aid of PowerPoint slides to be projected on a screen. In their preparation, it is good to adhere to the following rules:

- privilege 16:9 formats;
- avoid slides with too many objects (figures, diagrams, tables, etc.);
- avoid long written texts;
- verify beforehand the legibility from a distance of what is presented.

A suitable structure for the slide deck could be the following:

- title of the thesis, name of the candidate and of the supervisor(s);
- topic of the thesis work (subject and objectives of the work);
- central body of the presentation;
- conclusions (brief recall of results achieved, possible developments, topics left open, etc.).

It is recommended to agree on the slides and the structure of the presentation with the supervisor well in advance of the graduation session. Presentations in .ppt format must be delivered via methods that are communicated from time to time by the teaching secretariat and are loaded onto a computer intended for this purpose (it is always recommended to come equipped with a USB stick on the day of the discussion).

During the presentation, the candidate stands facing the Commission. It is good practice that during the exposition of the thesis work, the candidate speaks with a sufficiently loud tone of voice and makes eye contact with the members of the commission.

Time available

The time available for the presentation is fixed by the President of the Commission. Indicatively, it is **10/12 minutes**. The candidate must absolutely adhere to the pre-established limit to avoid being interrupted by the President and thus compromising the completeness of the presentation.

The discussion

After the presentation, the candidate is required to answer any questions posed by the supervisor and other members of the Commission. It is a good rule to prepare some *back-up slides*, relating to details that were not deepened in the exposition: they could prove useful during the discussion.

The proclamation

The proclamation normally takes place at the end of all presentations. Once called by the President, the candidate will stand before the President of the Commission and, at the end of the proclamation, will shake hands with the members of the commission, starting with the President.

6. Requirements of originality and integrity of the master's thesis

The thesis presented by the candidate must strictly respect the following criteria of originality and academic integrity:

- **Originality of the Work:** The thesis must be the exclusive outcome of the candidate's original work. Works produced by third parties or not deriving from one's own intellectual effort are not admitted.
- **Unpublished Character:** The thesis must not have been presented previously, either in full or in part, at any other Italian or foreign university for the purposes of academic evaluations, except in cases where this is required by the student's participation in special programs, such as TIME.
- **Citation of Sources:** The content must be supported by adequate bibliographic research. All sources used, whether direct or indirect, must be correctly cited, attributing the paternity of the ideas to the original authors.
- **Intellectual Property and Plagiarism:** The work must not violate the intellectual property rights of third parties. Any form of plagiarism is severely prohibited; the content must reflect the honesty and academic integrity of the candidate, in full awareness of the consequences deriving from the presentation of a work that is not their own.
- **Use of Artificial Intelligence:** Artificial intelligence (AI) tools and technologies must be used responsibly and transparently (their use must be declared). The creation, drafting, or writing of any part of the thesis using generative AI tools and technologies to generate new material is not permitted. The correction, editing, formatting, modification, or refinement of all or part of the original work using generative AI tools and technologies to improve its structure and the clarity of its language and grammar is permitted. In any case, please refer to the guidelines and instructions provided by the university on this subject, available at the following link: <https://www.unipd.it/en/university-policies>