

Guidelines for the Thesis

University of Camerino

Master Degree in Biological Sciences

An experimental thesis is a research-based academic dissertation that involves conducting original experiments—in a laboratory or field setting—to test hypotheses, collect empirical data, and analyze results, culminating in a report that integrates literature review, methodology, findings, and conclusions.

The thesis is conducted under the supervision of UNICAM supervisor/s and host company/institution supervisor when provided for by the project. The student and the host institution supervisor must keep the UNICAM supervisor regularly updated throughout the entire internship period regarding the activities carried out. This ensures that the UNICAM supervisor can verify that the internship provides the educational experience designated by the Degree Program Council and complies with the thesis project objectives.

Based on the experiments and data obtained, the student prepares and writes the thesis under the supervisor's guidance, in compliance with the guidelines outlined below. The student must submit a draft of the thesis to the UNICAM supervisor well in advance to allow for the revision process.

Structure of the Thesis

The thesis writing must not be a mere literature review but shall be based on the scientific evidence generated from your original experiments and data.

The Thesis must contain:

- The front page (see attachment)
- A table of content
- A list of abbreviations
- An **introduction** explaining the context or problem addressed during the internship
- The **aim of the study**, explaining the focus and scope of the thesis and addressing the "why," "what," and "how" of the research.
- **Materials and Methods**, including safety conditions, materials, instruments, and equipment employed, the experimental model, the experimental design, ethical

issues, the methodologies and protocols used, statistics, and other relevant details.

- **Results** directly obtained by the student during the thesis experience
 - The **Discussion** section should interpret experimental results in the context of existing literature, critically evaluating their significance, limitations, biological implications, and future research directions.
 - **Bibliography**
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General Guidelines

Language and Style

- **Correct spelling and grammar are essential requirements.** Pay particular attention to common errors: incorrect or insufficient punctuation, incorrect spacing between words
- Language must be technical, precise, concise, and non-colloquial
- Either first-person singular or impersonal form may be used to describe activities performed
- **Official technical terms** or definitions accepted by the scientific community must be used (e.g., refer to Medical Subject Headings MeSH, <https://www.ncbi.nlm.nih.gov/mesh/>)
- Use the same term consistently for the same concept: the use of synonyms in technical literature is often misleading
- Sentences should be brief, relative clauses should be reduced, and double negatives should be avoided

Bibliographic References

The final elaboration must contain appropriate **bibliographic and/or regulatory citations**. All information in the report that is not original—that is, not produced or acquired during the internship—must be reported with citation of the source.

- **Citations must refer to reliable bibliographic sources** (such as PubMed)
- Do not cite websites found on the internet where source reliability is uncertain and long-term availability is not guaranteed or Wikipedia

- For organizing the bibliography, we recommend using appropriate open-source software such as Zotero (<https://www.zotero.org/download/>)

Citation Format

References must be formatted according to a scientific journal style

In-text citations (example):

... We analyzed gene expression via RNA sequencing (RNA-seq) to identify differentially expressed transcripts (4–6).

Bibliography (example):

4. S. Wang et al., Single-cell RNA sequencing reveals the molecular mechanisms underlying muscle regeneration. *Nat. Cell Biol.* 24, 1058–1070 (2022).
5. A. M. Bolger, M. Lohse, B. Usadel, Trimmomatic: A flexible trimmer for Illumina sequence data. *Bioinformatics* 30, 2114–2120 (2014).
6. F. A. Wolf, P. Angerer, F. J. Theis, SCANPY: Large-scale single-cell gene expression data analysis. *Genome Biol.* 19, 15 (2018).

Units of Measurement and Symbols

- Ensure unambiguous communication by maintaining consistent use of symbols throughout the report. Always assign one unique symbol per quantity and use it uniformly across text, figures, tables, and appendices.
- SI units of measurement must be used
- Chemical compounds must be described using IUPAC nomenclature
- Symbols and acronyms should preferably be collected and defined in a dedicated initial table
- Acronyms must be spelled out in full the first time they are used in the text, followed by the abbreviation in parentheses (e.g., Reverse Transcription Polymerase Chain Reaction (RT-PCR)).

Intellectual Property

For all material included in the report text (images, tables, etc.), intellectual property rights must be verified, and **sources must always be cited**.

Particular attention must be given to avoiding plagiarism (copying others' work, copying entire paragraphs from scientific articles) and the use of Artificial Intelligence systems for content generation)

Authorizations and Data Consent

The final version of the report has to be approved by the hosting company/institution/professional for the use of data and information directly concerning them.

Special attention must be paid to the use of sensitive patient data during the internship. Such use should be confined solely to analysis purposes, ensuring absolute anonymity.

For experiments involving animals, adherence to the 3Rs principles (Replacement, Reduction, Refinement) is mandatory, following national (e.g., Italian D.Lgs 26/2014) and EU Directive 2010/63/EU regulations. Ethical approval from the competent authority must be documented, with details included in the report's Materials and Methods section.

References to trademarks and commercial logos should only be used when strictly necessary and not in a manner that constitutes direct or indirect advertising. Logos and trademarks cannot be used in the report title appearing on the cover page.

Acknowledgments

The addition of acknowledgments is permitted but not encouraged. If included, they must be extremely concise and placed on the last page.

Formatting Requirements

Page Layout

- **Margins:** 2.5 cm on all four sides (the inner margin may be increased to accommodate binding)
- **Text alignment:** Justified (aligned both left and right), except for bulleted lists, which should be left-aligned
- **Page numbering:** All pages (except the cover page) must be numbered sequentially in the bottom-right corner
- **Line spacing:** Between 1 and 1.5 (typically 1.5)
- **Font size:** 12 pt (10 pt for footnotes)
- **Font:** Arial or Times New Roman

Figures, Tables, and Equations

All figures, tables, diagrams, and equations included in the text must be accompanied by an **appropriate explanatory caption**, as shown in the example below:

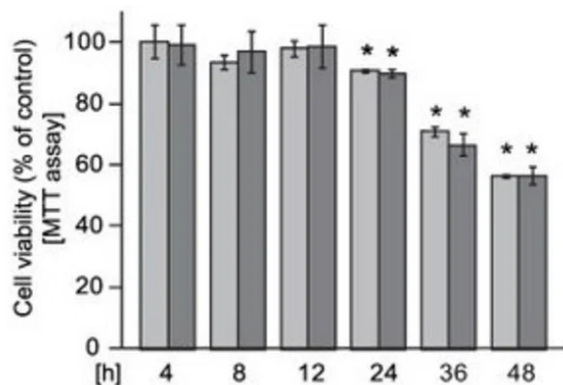


Figure 1 Relative cell viability of [cell type] exposed to different concentrations of [compound] at 4, 8, 12, 24, 36, and 48 hours. Relative cell viability was determined by the MTT assay. Cells were treated with increasing concentrations of [compound] for the indicated times, and cell metabolic activity was expressed as a percentage relative to untreated controls (set as 100%). Data are presented as mean $\pm$ SD of $n = 3$ independent experiments ($p < 0.05$ compared to control, Student's t-test).

Tables

- Values reported in tables should all have the same number of significant figures or the same type of rounding

Figures

- Figures must be well separated from the text and sufficiently large so that they are easily visible, including details and small text
- Figures should be produced originally by the student
- If figures are taken from another publication, the source must be cited in the caption

Presentation Slides

Similar recommendations must be considered when preparing the presentation slides, which should include:

- **Brief introduction** (2–3 slides)
- **Results obtained by the student during the internship**
- **Conclusions**
- **Total presentation time must be within the limits assigned by the Chair of the Degree Committee**

Slide Design Guidelines

- References to trademarks and commercial logos should only be used when strictly necessary and not in a manner that constitutes direct or indirect advertising
 - Animations, fonts, and character sizes should be used to enhance comprehension, not impede it
 - Graphics should conform to UNICAM branding guidelines
 - Slides should not be overcrowded with text that the student simply reads aloud; instead, they should contain key points and visual elements that support the oral presentation.
 - The use of notes during the presentation is not permitted.
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Contact and Submission

Students should check specific submission deadlines and defense scheduling.

For additional information and templates, visit the official UNICAM degree program website (<https://miiscrivo.unicam.it/domanda-di-laurea-e-upload-tesi>) or contact the Student Affairs Office.