

# How to Write a MSc Thesis?

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Suggestions for modifications are welcomed by Ellis Hoffland

Most students will write an MSc thesis in line with the instructions below. In some exceptional cases, a draft manuscript, to be submitted to a journal, can be written instead. If that is so, alternative instructions provided by the selected journal may apply.

Thesis writing includes 5 steps:

1. You prepare a draft Introduction and submit this for feedback to your peer students in the thesis rings, after which you modify this draft. Plan submission and sign up well in advance.
2. Same for Methods and Results
3. Same for the Discussion, title, abstract  
(you may change the order of steps 1-3; some prefer to submit Methods and Results first)
4. You then prepare a *complete* draft (including all sections listed below) for your supervisor. S/he will give you detailed feedback once. Plan this well in advance for quick turnaround.
5. The next version should be the final one. Check with your supervisor and examiner when (how long prior to examination) they need this version.

Detailed instructions can be found in the *highly recommended* "**English for Writing Research Papers**" (Wallwork 2016; available on the Blackboard site of the Thesis Rings).

- Part I (Chapters 1 – 11) deals with academic writing skills;
- In part II (Chapters 12-19) all sections of the thesis listed below are dealt with in great detail with helpful examples.

Below you will find short instructions.

Would you need further help in academic writing? Please refer to our Writing Lab:  
<http://www.wur.nl/en/article/Wageningen-Writing-Lab-for-students.htm>

## Sections of your thesis

### Title page

- Title of the research project, followed by "MSc thesis" and the course code
- Your name (incl. reg.nr.), supervisor name, Chair Group name
- Date of submission of the final version
- Optional: illustration relevant to the subject

**Title** should be brief (maximally 12 words) but comprehensive and specific. Should contain all relevant keywords. Can be a summary, a conclusion, question, short description of the subject,..... Avoid dull titles like "The effect of...", "Some aspects of....."

**Abstract** Maximally 250 words, summarising each of the other sections. It should tell why and how the study was made, what the results were and why they are important. Start with a clear statement of the objective, the approach, and main results. End with one or two sentences that emphasise important conclusions. Use the past tense.

**Preface** (optional) The personal touch to the thesis. For instance: Why were you interested in the topic, whom did you cooperate with, ....

### Contents Table

**Introduction** Demonstrates that the story being told is worth telling, makes the reader enthusiastic.

Gives a description of the problem that is dealt with in the thesis and its context. Usually gives a historical, *brief* summary of the relevant literature about what is known and identifies the knowledge gaps. This is followed by the objectives of the study. Specify the research question to be answered or the hypothesis to be tested.

Do *not* repeat BSc study material. Expect your reader to be well informed about everything you (are supposed to) have learned during your pre-MSc training.

Usually the Introduction has this kind of structure:

- Context, problem description

- What do we know?
- What is it that we don't know? What is the gap in the knowledge?
- Why do we need to know? Why is it important?
- Objectives/hypotheses of the study

**Methods** How did you do it? Give as many details as needed, but not more, such that the research can be repeated by a knowledgeable colleague. Use the past tense.

**Results** Presents *all of your* findings clearly, logically and concisely. Try to write this section in such a way, that reading of Materials and Methods is not necessary to understand what has been done. Use graphs and tables (see below), but make sure the text is readable without having a look at them. The most relevant results that appear in a table or figure should also be described in the text, referring (between brackets) to the relevant Table/Figure. Use the text to guide the reader and to highlight and reinforce those data from tables and figures that will be important in the Discussion. Results obtained by you but not relevant to the storyline of your thesis, should be put in the Appendix. Do NOT interpret data or draw major conclusions. Use the past tense. Avoid sentences like "Figure 3 shows the free metal concentrations in soils with different pH's". This repeats the figure legend. Write instead: "The free metal concentration was higher in soils with a lower pH (Figure 3)". This represents the message of the figure and triggers the reader to have a careful look at the figure.

**Discussion** Feeds back on your research question or hypothesis. Generalises and interprets results. What do your results mean? Refer to Figures and Tables in the Results section whenever applicable. What did we learn from your results? How do they compare to what was previously published (references)? What are the answers to the research questions presented in the Introduction? What do we NOT know yet, and should be addressed in future research? Use literature references to support your arguments.

Use the present simple (*have*), present perfect (*has been*) or past simple (*had*) to refer to other authors but only the past simple to refer to your work. The present perfect should not be used to refer to work that you have carried out. Use present tense when referring to generalities.

Usually the Discussion has this kind of structure:

- Reiteration of the main findings in view of the research questions. What are the main findings, what new information did you find? What can you conclude about your hypotheses/research questions?
- What is the novelty of these findings, and how do they extend the frontier of knowledge, as compared to what other people have already found. What do we understand now that we did not understand before?
- Finally, you can state something on the practical implications of the findings.

**Conclusions** (optional) reminds readers of the most salient points of your paper, contains recommendations, implications and areas for future research. This section should *not* replicate the Abstract!

**Acknowledgements** (optional)

**References** Use the style from Soil Science Society of America Journal. Instructions on how to generate this list automatically using Endnote or Mendeley can be found at <http://www.wur.nl/en/Expertise-Services/Facilities/Library/Students.htm>

**Appendix** Contains less relevant data, or objects too large for the main text. Consult your supervisor. You may put all the original data in here, preferably in Tables with self-explanatory headings.

## Tables and Figures

There is no general rule telling you if results should be presented in a figure or table. Figures should focus on relationships among numbers. Figures are usually easier to read, but less precise. Use figures to show qualitative features and trends. If you have too many treatments or data to compare, then a table can be more appropriate. Also, a table is necessary if the reader should be able to evaluate the exact numbers.

- **Figures:** Each separate figure should be understood independently. It should have its own, *self-explanatory* legend, *below* the graph or picture. It should be possible to read and get the message from the figure without reading the rest of the thesis. In cases of graphs: all axes should have titles, with SI units in brackets. Use error bars (and indicate whether they refer to Standard Deviation, Standard Error or Confidence Intervals) whenever means of replicates are given, and mention the number of replicates in the legend.

- **Tables:** Each separate table should have its own, *self-explanatory* heading, *above* the table. It should be possible to read and get the message from the table without reading the rest of the thesis. Row and column headings should be complete, including SI units. If units are the same for all numbers, they can be given in the heading. Do not use vertical lines. Avoid using more than three digits to present data because the error is usually in the range of 5-10% or even larger. In case of replicates: give *either* standard error, *or* give means that do not differ significantly the same letter. Mention the number of replicates in the heading, and the statistical methods used (if applicable).

## Style guidelines

- Use short and simple sentences. Present only one idea per sentence. Begin a sentence with the most important idea, the subject. For maximum readability, most sentences should be about 15-20 words.
- Separate paragraphs by a white line.
- Make sure each paragraph follows one single idea only. Start each paragraph with its message, the most important or topic sentence ('mini-summary'). This makes reading more easy and effective and attracts attention. Round off each paragraph with a final sentence emphasizing its key point. Paragraphs of about 150 words in length are considered optimal.
- Both the accepted common name and the chemical name of a compound must be given when first mentioned in the text and abstract. For plants, the scientific ('Latin') binomial and authority (*Brassica napus* L.) must be shown at first listing in the abstract and main text. Later *B. napus* or rape can be used. All scientific names should be in *italics*.
- SI units must be used throughout.
- Abbreviations: provide an alphabetical list of abbreviations if necessary. Do not include SI units or chemical element symbols. When necessary, provide a glossary.
- Spelling: apply the Spelling and Grammar check (Tools) in Word. Do not accept automatically all suggested corrections as these Word tools. Consequently use either UK or USA English as language.
- Grammar: use present tense for common knowledge, so for the major part of the Introduction and Discussion ('Plant roots *modify* the rhizosphere.'). Use past tense for the major part of Materials & Methods and Results ('Rhizosphere pH *was measured*.')

## Size

Make the report as concise as possible. Remember a scientific publication of several pages only, usually describes work of more than one person that took over a year. If a general relationship between size and quality would exist at all, it would be: The shorter, the better!

## Layout

Font: Preferably a serif letter, for instance Times New Roman or Cambria, font size 11 or 12  
 Line spacing: Single at 1.15 or 1.2, double spacing for drafts  
 Margins: 2.5 cm on all sides  
 Page numbering on  
 Line numbering on (for drafts only) (Office 2016 for Windows: Layout → line numbers → continuous)

## Further reading

Alley M 1996 The Craft of Scientific Writing, 3<sup>rd</sup> ed. New York etc., Springer-Verlag.  
 Legendijk A 2008 Survival Guide for Scientists. Amsterdam, Amsterdam University Press.  
 Lindsay D 1995 A Guide to Scientific Writing, 2<sup>nd</sup> ed. Melbourne, Longman.  
 Malmfors B, Garnsworthy P & Grossman M 2000 Writing and Presenting Scientific Papers. Nottingham, University Press.  
 Peat J, Elliot E, Baur L, Keena V 2002 Scientific Writing: Easy When You Know How. London, BMJ Books  
 Wallwork A 2016 English for Writing Research Papers. 2<sup>nd</sup> edition. Heidelberg etc., Springer.