GENERAL GUIDELINES

How to prepare a Master thesis for the School of Forest Sciences, UEF

UNIVERSITY OF EASTERN FINLAND

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NOTE! This thesis aid incorporates the thesis guidelines only from the University of Eastern Finland.

1 Introduction

1.1 General definitions

The Master thesis offers the challenge of demonstrating your ability to set up and carry out a scientific research project in a self-responsible and independent manner. This challenge includes:

- to provide an adequate delineation and definition of your research topic,
- to build a sound theoretical framework for orientation of the research,
- to collect data in a systematic and verifiable manner,
- to analyse the data critically and correctly,
- to present the results in a comprehensible manner,
- to draw sound conclusions based on a comprehensive discussion of the results, and
- to show the potential contribution of your research to the process of theoretical reconstruction of the topic.

1.2 Ethics of preparing a scientific work

There are two main principles that need to be kept in mind when preparing the thesis:

1. The thesis must be based on honesty and truth, for example do not falsify or fabricate data.
2. Give credit where it is due for example for an idea or data, which includes not plagiarising other people's work.
   a) Every idea that is not your own must be credited. Otherwise you are taking credit for another person's idea.
   b) Every fact that you did not yourself establish must be credited. Otherwise you are claiming direct knowledge that you do not have. This includes field or laboratory work actually done by others which you are reporting. [Taken from Rossiter International Institute for Geo-information Science & Earth Observation (ITC) Enschede (NL)]

2 Elements of the thesis

2.1 Selection of a topic

You can contact your programme coordinator(s) and discuss with him/her about the different options and the topics you would be interested in. You may also check by yourself the web pages of the School of Forest Sciences, and contact directly the professor or other teaching staff for further information about the possible topics and projects that are going on at the School. In case, the other supervisor comes will be from the other university, you should also discuss about the topic with him/her and check the guidelines of that university.

2.2 Checklist for successful completion of MSc thesis work

Action	Who?	
1. Preliminary brainstorming and search for possible topics for a Master thesis.	[Student,coordinator(s)]	
2. Discuss about thesis topics and supervisors with the coordinator of the host university where you will do your thesis.	Student, supervisor	
3. Student attains copy of thesis guidelines from host university. Student must fully understand these guidelines.	Student, supervisor	To be decided together with the co-ordinator at your host university and/or your supervisor
4. Write a study plan.	Student, supervisor	
5. Only at UEF: Fill in an agreement at (https://www.uef.fi/intra/metsa/lomakkeet) which includes the student's commitment to carry out such thesis and the supervisor's commitment to supervise the thesis, under the agreed conditions and according to the rules of the host university. The agreement must be signed by both parties and also include a study plan (1 page). Send a copy of the agreement to your programme coordinator.	Student, supervisor	
6. Thesis work	Student (supervisor)	
7. Only at UEF: Provide a pdf-file of the final version of the thesis to the office of School of Forest Sciences after supervisor's approval that the thesis can be submitted to evaluation process. The cover sheet for the thesis can be found: https://www.uef.fi/intra/metsa/lomakkeet See also attachment 1.	Student	
8. Present final thesis (eg. online thesis seminar)	Student	

Some of the partner universities stipulate that the thesis period lasts for a fixed length of time. Failure to submit the thesis within this period can negatively impact the grade. The

student and the thesis supervisor should determine the deadline in accordance with the host university's guidelines.

2.3 What is a research proposal?

The answer below is based on thesis guidelines for the University of Eastern Finland.
Broad agreement exists on the basic scientific standards that apply for a scientific study. Above all, the scientific standards that apply (and thus must be met) are the following:

- The thesis must be theory-based.
- The research must be verifiable.
- The research must be in principle replicable.

To make sure that your research is complying with these rules, you should start by making a research proposal attending to these standards. A proposal consists of the following parts:

- Problem statement: This gives the motivation for the selection of the topic and a clear description of the problem field, finally resulting in a concise problem statement. This part includes a review of the empirical literature, which is most relevant to the topic and ensures that the topic has not already been exhausted by other researchers.
- Research objective(s) and research questions: This clearly states the scientific objectives of the research. It is important that the objectives of the research are strictly related to the research topic.

Subsequently, the research objective(s) should be translated into research questions. These are the questions that need to be answered in order to implement the research.

Methodology:

- In this part of the proposal it should be explained how the theory and research questions can be examined and answered. The function of the methodology part within the research proposal (and later in the thesis report) is to specify reliability, validity and replicability of the research.
- Identify the character of the thesis work. For instance: is it an explorative, or comparative, or experimental study?
- Design the data collection. This step requires arguing about, and providing an answer to, the following questions:

(1) What is seen as data and from which sources of information do you obtain these data?
(2) What are the criteria for determining and delineating the sources of information?
(3) What methods are employed to derive the data from the sources of information? Is the case of experimental work: what is the experimental design, which factors do you explicitly test for, how many replicates do you have, etc.?

- Design the data analysis: It should be pointed out that the description of the methods is necessary for data collection as well as for data analysis. How can the data be processed? Which statistical tests can be applied given the employed data collection methods or experimental design? Note that it is important to think

about data analysis before you start to collect data. Certain analyses require certain data formats and experimental set-up.

- Working plan and time schedule: The research proposal finally should be completed by a comprehensive working plan, indicating the necessary steps in carrying out the research, as well as their logical order in time.
- In some cases you need a financial plan. The general necessity of financial means to carry out the thesis work needs to be discussed and agreed between student, supervisor, and examiner before the actual thesis work starts.

3 Example of thesis guidelines from University of Eastern Finland

3.1 General

It should be noted that thesis guidelines are different for each university. It is the responsibility of the student to attain and fully understand the guidelines for his or her host university. These guidelines presented here are applicable for those doing their thesis for Joensuu. Please also check the guidelines provided in Forestry Student's Guide that is available in the intranet of the School of Forest Sciences and also take into account the advice given by your supervisor(s).

The research activities should finally result in a comprehensive, consistent and concise thesis report. There is no fixed limit to the size of the thesis. In general, a text is as long as is needed. As a rule of thumb, the size of the thesis should not exceed 60 pages, excluding annexes. Ideally, you should write your thesis as if it were a scientific article ready to be published.

A good thesis should have three fundamental characteristics:
(a) It should be clearly expressed and presented.
(b) It should be concise.
(c) It should be consistent in style.

3.2 Thesis structure

- **Cover page**: The cover page can be found at
  https://www.uef.fi/intra/metsa/lomakkeet
  The font should be Times New Roman and the font size 14.
- **Abstract**: The abstract is an independent overview of the contents of the thesis. It may not contain any references to the actual text or uncommon abbreviations explained in the thesis etc. By reading the abstract the reader should get a comprehensive idea about the study.
- **Foreword**: The eventual foreword explains the motivations for the study and its connections with a broader research. Additionally, the supervisors are mentioned in the foreword and the author may give acknowledgements to persons and organisations who have contributed to the thesis. It should be stated either in the

foreword or in some other appropriate place where the empirical data used in the study is saved or stored.

The abstract and foreword are not included in the table of contents, because they are placed before the table of contents. The unnumbered heading pages shall be regarded as page 1 (not the hard cover).

- **Introduction**: This part includes the problem statement, the scientific objectives as well as the research questions that you have formulated in your proposal. You can also give a characterisation of the type of work and a short outline of the structure of the subsequent chapters can complete it. Note that during your research work you may have come up with additional questions. These should also be mentioned here, but it should be clear that these questions were not part of the original set-up. The introduction includes the **Theoretical Framework** where you provide a review of the theoretical and empirical literature and the reconstruction of the used theoretical concepts. The theoretical framework may be completed by a conceptual model, in which the relations of the relevant concepts of the applied theories are presented. Note that this framework may also be part of the introduction instead of being presented as a separate chapter.
- **Material and methods**: This part reports on the information sources used, as well as the applied methods and materials used for data collection and data analysis. In contrast to the research proposal -where this section is presenting the ambitions/ plan- you must present the situation as it has actually worked (incl. problems that occurred) in the final thesis report. In the case of fieldwork, you should describe the area and sites in which the research was carried out. When you have done experimental work, you should give all relevant details of the followed procedure (protocol). This enables others to evaluate your work, and to reproduce it if needed.
- **Results**: In this section the results should be presented in the most objective and comprehensive manner. Mixing results with subjective interpretation and discussion should be avoided. The challenge is to structure the results in such a way that the research questions are addressed as best. Where appropriate, the findings should be illustrated or summarised with tables and figures. In any case tables and figures must be drawn in such a way that they can be read on their own, independent from the surrounding text. Do not forget to include measurement units and an explanation of abbreviations. Colour figures should be avoided. Use grey scales or textures instead. References to tables and figures should be made in the text (e.g., see table 1; cf. figure 2). Note that table captions are given above the table, whereas figure captions are placed below the figure.
- **Discussion**: The discussion section links your own findings, as presented in the result section, with those of others. What do your results mean and imply? The challenge here is to argue for and against the findings and the related theoretical concepts. Literature references are therefore again a requisite in this section. Furthermore, you must discuss your findings in the background of the scientific objective(s) and the research question(s), as well as in the light of the chosen

theoretical framework. Last but not least, it should also not be forgotten to discuss to what extent the findings might have been influenced by the chosen methods.

- **Conclusions**: This section brings together the most important consequences of your research. These conclusions normally touch on three aspects: a.) the scientific objective and the research questions (results); b.) hints for future research on this topic (theoretical framework and methods); c.) practical application of the results (consequences in management and policy).
- **References**: see below.
- **Annex/Appendix**: The annex should include information, which can be missed in the direct text body but is relevant for the understanding of the research or of important steps of it. This could mean for example: the inclusion of the original data, further detailed statistical analysis, etc. Note that also the annex pages should be numbered consistently with the general text.

Different types of research (e.g., historical research, a literature review) might require a slightly different chapter structure.

3.3 References

It is very important that you give proper references when making statements from the literature. References acknowledge the work of others, and provide the reader with information on the sources that you used. A reference should give the author's surname, the year of publication and the page reference:

1) The difference between snow cover in Spain and Finland is remarkable (Smith 1998).
2) Smith (1998) discovered a remarkable difference between the snow cover in Finland and Spain.

"et al." can be used for works by three or more authors if there is no possible ambiguity. The names of the co-authors should, however, be given in the list of references. For example: Mitchell et al. (1997) or (Mitchell et al. 1997). In the references it would be presented as follows:

Mitchell, R., Agle, B., and Wood, D. 1997. Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. Academy of Management Review, 22: 853–886.

If there are more than one reference the references should be in chronological order (oldest first); if more references of the same year the order should be alphabetical; if more than one reference from same authors during the same year the publications should be separated by using a, b, c... If the publications do not have any author or editor, 2-3 first words of the title is used (Guidelines for Forestry… 1990: 108).

For referencing a source from the internet do not give the URL, instead reference it as a normal reference e.g. (UPM 1998) or (Slater 2006). See below for how to present internet sources in references.

References used should be written in alphabetical order by authors. The publications of same author/s are in chronological order (oldest first). Publications written alone by the same author are before joint-publications. If the publication does not have any author or editor are ordered by title. When referring a joint publication with many articles, the name of the whole publication and editors should be mentioned after information of the referred article; for pages the pages of the article are given.

Examples:

1) Mannerkoski, H. and Möttönen, V. 1990. Maan vesitalous ja ilmatila metsäaurausalueilla. Summary: Soil water conditions and air-filled porosity on ploughed reforestation areas. Silva Fennica 24(3): 279–301.

2) Hänninen, H. 1990. Modelling the annual growth rhythm of trees: conceptual, experimental, and applied aspects. In: Jozefek, H. (ed.). Modelling to understand forest functions. Silva Carelica 15: 35–45.

For referencing articles/books written in a language other than English follow this example:
Hirsjärvi, S., Hurme, H. 2000. Tutkimushaastattelu: Teemahaastattelun Teoria ja Käytäntö. Helsinki University Press. 213 p.

If the article/book is written using non-Roman characters (e.g. Russian and Chinese) then it must be written using Roman letters:
Kočegarov, V.G., Bim, Û.A., Men'šikov, V.N. 1990. Tehnologiâ I Mašiny Lesosečnyh Rabot. Dopuŝeno Gosudarstvennym Komitetom SSSR Po Narodnomu Obrazovaniû v Kačestve Učebnika dlâ Studentov Vyssih Učebnyh Zavedenij, Obučaûŝihsâ po Special'nosti "Lesoinženernoe Delo". Lesnaâ Promyšlennost', Moscow. 315 p.

For referencing a source on the internet do it in this form:
Author's surname, initials of given names, date of document, Title of document,
<web address>, date accessed.
Company/Institute name, date of document, Title of document,
<web address>, date accessed.
For example:
UPM. 1998. UPM-Kymmene and APRIL announce signing of a USD 250 million term loan facility for China joint venture. Press release 01/12/1998 http://w3.upm-kymmene.com/upm/internet/cms/upmcms.nsf/($all)/c981cda508c61f03c2256d3a00322ab7?OpenDocument&qm=menu,0,0,9 Accessed: 19/04/2005.

Slater, D. 2006. Why is Sukanto Tanoto laughing? FinanceAsia.com. 26/10/2006. http://www.financeasia.com/article.aspx?CIaNID=41198 Accessed: 27/10/2006

Some universities have different formats for referencing, please check with your thesis supervisor.

3.4 Other format points

3.4.1 Font

Font should be Times New Roman or comparable. Font size is normally 12. Space between lines is 1.5. The exceptions are bibliography and figure- and table legends, where space between lines is 1.

3.4.2 Margins

The text will be printed on A4 –paper. The Margins are: on left 3 cm, on right, top and bottom 2 cm.

3.4.3 Topics

The topics of chapters should be bold. Title of thesis (or other work) and all main topic headers should be written with capital letters, sub-topic headers with ordinary letters. Chapters and sub-chapters should be numbered (e.g. 1.2 or 2.3.4). Before main topics should be 2 lines space and before sub-topics 1 space.

3.4.4 Justifying text and chapters

Text should be justified (both left and right side). Chapters should be separated with one empty space. The first line of the paragraph should not indented.

3.4.5 Page numbers

The page number should be in the middle of the upper page. Font is the same as for the other text. Numbering starts from the cover page, but the page number 1 should not be shown. All other pages should have the page numbers.

3.4.6 Header and footer

Headers and footers can be used to make the text more readable. Header should be separated from text by using narrow, whole page wide, horizontal line. When using headers, the page number should be in the upper right corner.

3.4.7 Figures and tables

Figures and tables are to complement and clarify text, not vice versa. All tables and figures should be referred on text. For example: “The difference between growth rate of pine and salix is remarkable (Figure 4).”

Unnecessary “lines” and frames should be avoided when using figures and tables, and those should be removed. Vertical lines should be avoided in tables. Figure legend is

placed under the figure and table heading above table. Titles of figures and tables are bold, but the text is not: Table 1. The difference between….. The legends should be written by using single space, font type and size is the same as in the main text. Both figure and table legends should be so informative that the table or figure is understandable without reading the article.

Attachment 1.

In the Faculty of Science and Forestry of UEF the master theses will be processed electronically. The university library will archive all the master theses in electronic form, so it is rather unnecessary to process with paper copies. The process for master thesis is updated as follows:

PROCESSING OF ELECTRONIC MASTER'S THESES AT THE FACULTY OF SCIENCE AND FORESTRY

Master's thesis process

- When the student and his or her supervisor think that the student's Master's thesis is ready, finalised and ready for examination, the student delivers one PDF copy of the thesis to the office of his or her academic subject in order for the examiners to be appointed. The PDF file should be delivered to the office either as an email attachment or on a USB drive, and all of the security settings of the PDF file need to be set as "allowed"
- When the examiners' statements and proposals of the grade have arrived, the student's department/ school will ask for the student's comment on the statements, and the student will also be asked to fill out an agreement for e-publishing
- The student comments on the examiners' statements and returns the duly filled out e-publishing agreement to the office in two (2) copies.
- The Master's thesis is given a grade by a decision of the Dean, and the faculty enters the grade in the student's study register.
- The graded Master's thesis in the PDF format will be uploaded to the faculty's network drive.
- The library will make the Master's thesis available online (Open Access) after the e-publishing agreement has been concluded. If the student does not wish to conclude an e-publishing agreement, the Master's thesis can only be accessed in the campus library.