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# GENERAL PROCEDURES AND GUIDELINES FOR MSc THESIS PROJECT

*MSc thesis (30 ECT) in the Master of Science in European Forestry programme*

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## **1 Introduction**

### **1.1 Objectives of these guidelines**

These guidelines have been made to ensure equal treatment and procedures of the students regarding the organisation of the MSc thesis process in the MSc European Forestry programme. These guidelines are valid in all MSc European Forestry Full partner universities. However, additional guidelines and specific regulations may be applied in some universities and in those cases, those should also be respected.

The Master thesis of the MSc European Forestry programme offers you 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 the 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 and discuss material, methods and results adequately and to draw appropriate conclusions.

### **1.2 Thesis supervision concept**

The supervision process in MSc EF programme can be divided into following items:

- the start of thesis preparation
- thesis work
- evaluation of thesis
- problems in thesis process

#### The start of thesis preparation

Thesis supervision process is started in the second-year university after discussing with your local coordinator of MSc EF programme. Preliminary brainstorming and search for the possible topics can be made with various teachers and researcher within MSc EF Consortium. Primary supervisor is defined in the second-year university according to the formal procedure of each university. The joint supervision concept needs to be considered when thesis is started (a recommendation: supervisors from two Full partner universities). All Full partner universities are able to accept additional supervisors outside the hosting university.

Joint supervision is encouraged to promote collaboration between scientific communities. Typically, there is an intention to write scientific article jointly from the subject of thesis. You are supposed to take the initiative to start joint supervision by contacting potential supervisors. The local coordinators of each Full partner university are supporting you to find potential co-supervisors. The MSc EF programme organises an annual event to promote joint supervision opportunity during the annual consortium meeting and promotes profile of teacher pool of all participating universities.

### Thesis work

The supervisors of MSc thesis project are recommended to have regular meetings (a recommendation twice a month) with you to ensure that the thesis work is going smoothly and the possible challenges and/or problems you may have, can be dealt with. Also these regular meetings ensure that you are aware of the individual regulations and guidelines that each second-year university may have in addition to these guidelines and recommendations. Supervisor(s) should also take care that it is possible for you to finish your MSc thesis in time (the workload should be adjusted to 30 ECTS, one semester).

### Evaluation of thesis

Thesis will be graded according to practice defined in the hosting second-year university. In the degree certificate issued by UEF, the thesis grade is presented as “pass” with the mention in which university thesis has been evaluated. The original grade will be shown in the transcript of the second-year host university.

The following requirements related to the evaluation of MSc thesis work are jointly followed in each MSc EF Partner university:

- The evaluation by the second evaluator should be done independently and the second evaluator should generally not be participating in the supervision process.
- Plagiarism is controlled using software used in the partner University. Local coordinator of MSc EF programme will ensure that plagiarism is controlled.

University specific practices are described below and combined in **Table 1**.

### *ALU*

Master thesis: The thesis can be started when in total 70 ECTS have been reached. The master thesis is evaluated by two teachers. At least one of the evaluators has to be permanently employed by the University. Presentation of the master thesis work in a seminar setting is not compulsory but recommended.

### *AgroParisTech*

The internship that leads to the master thesis takes place in a host institution (research lab, professional organisation) supervised by a supervisor in the host institution with an academic tutor in AgroParisTech. It includes the formalisation of an innovative question and a scientific method (data collection and analysis) to solve it. Its duration is at least 20 weeks. Master thesis is evaluated by a written appreciation from the supervisor (20%), a review of the written thesis by two reviewers (40%), an oral defence evaluated by a jury of at least 3 experts (researchers, teachers), among them the responsible of the curriculum in AgroParisTech (40%). Master thesis defence are organised in the very beginning of September.

### *BOKU*

After the successful completion of all the courses and examinations required in the Master's Programme, the completed master's thesis, after it has been given a positive evaluation by the thesis supervisor, shall be publically presented by the student and defended in the form of an academic discussion (defensio). The committee shall consist

of a committee chair and two additional university teachers with a *venia docendi* or equivalent qualification. The student's total performance (thesis and *defensio*) will be assigned a comprehensive grade. Both thesis and *defensio* must receive a passing grade for the student to complete the programme. The written evaluations stating the rationale for the thesis grade and the *defensio* grade are included in calculating the comprehensive grade and are documented separately.

The comprehensive grade is calculated as follows:

- Master's thesis: 70%
- *Defensio* (incl. presentation): 30%

#### *UoL*

Master thesis: No exact regulations for the timing of the thesis. The master thesis is evaluated by three external evaluators.

#### *UTBv*

Positive completion of the internship and master thesis worth a total of 30 ECTS credits. The internship that leads to the master thesis may take place in the research labs of the university or in a host institution (research institute, forest company) under the coordination of the supervisor of the MSc thesis. The internship lasts for at least 10 weeks. The MSc thesis is first evaluated by the supervisor, who decides on the approval and submission for the public defence. The oral defence is evaluated by a jury of three 3 experts (professors). The jury is nominated by the Faculty Council. Master thesis defence is organised in early July or early February next year

**Table 1.** Thesis process and evaluation process at the second-year host universities.

| University    | Timing of the thesis and the special requirements                        | Possible/preferred format of the MSc thesis     | Local Oral defense and/or seminar compulsory | Evaluation process and grading (number of evaluators etc.)                | Deadline, payment                               |
|---------------|--|---|--|---|---|
| ALU           | 6 months, a min. of 70 ECTS is required before the thesis can be started | Scientific thesis                               | No/<br>Optional                              | 2 evaluators. If grading difference >1 additional evaluator is nominated. | No deadline (after September new academic year) |
| AgroParisTech | 5-6 months<br>Feb-August   | Scientific thesis                               | Yes/<br>No                                   | 3 evaluators, 20% by supervisor, from university.                         | November, Thesis work is paid.                  |
| BOKU          | 6 months<br>fulltime<br>equivalent                                       | Scientific thesis                               | Yes/<br>Yes                                  | 2 evaluators, thesis 70% + public defense 30%.                            | No  |
| UoL           | No exact<br>timing<br>requirements                                       | Publication/Technical report/ Scientific thesis | Yes/<br>No                                   | 3 evaluators, all external evaluators.                                    | September (extension in next academic           |

|      |   |                   |            |   |                                       |
|------|---|-------------------|------------|---|---------------------------------------|
|      |   |                   |            |   | year possible)                        |
| UTBv | 4 months, Feb-June, a min. of 60 ECTS is required before the thesis can be started and a min. of 120 ECTS when thesis is submitted. | Scientific thesis | Yes/<br>No | 3 evaluators, thesis + oral presentation combine the grade. | June (extension in January next year) |

### Problems in the thesis process

When problems will occur during thesis supervision process, you are advised to contact the local coordinator of the second-year host university first and if no solution is found the programme coordinator of the MSc EF-programme at the University of Eastern Finland. The programme coordinator and the local coordinator will then discuss about subject. All informed problems as well as the general feedback related to the thesis process are analysed in the annual consortium meetings.

### **1.3 Ethics of preparing a scientific work**

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

1. The thesis must be based on honesty and truth, for example you cannot falsify or fabricate data.
2. You should 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 are advised to contact your local coordinator at your second-year host university and discuss with him/her about the different options and the topics you would be interested in well before starting the thesis project during the autumn semester of the second-academic year. You may also check by yourself the web pages of your second-year host university and contact directly the professor or other teaching staff for further information about the possible topics and projects that are going on. In case, the other co-supervisor comes will

be from the other university/organisation, you should also discuss about the topic with him/her.

## 2.2 What is a research proposal?

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 and hypotheses.
- **Research objective(s) and research questions:** This clearly states the scientific objectives of the research and includes formulation of the underlying scientific hypotheses. 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? In 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, important milestones 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.

### 2.3 Checklist for successful completion of MSc thesis work

| Action   | Who?  |
|--|---|
| 1. Preliminary brainstorming and search for possible topics for a Master thesis.   | Student, local coordinator                  |
| 2. Discuss about thesis topics and supervisors with the coordinator of your second-year host university.                         | Student, local coordinator, supervisor(s)   |
| 3. Consider potential of co-supervision concept (additional supervisor outside host-University).                                 | Student, local coordinator, supervisor(s)   |
| 4. Discuss with the supervisor(s) (and local coordinator) about the specific requirements and guidelines for the thesis project. | Student, supervisor (and local coordinator) |
| 5. Write a study plan.   | Student, supervisor                         |
| 6. Thesis work – regular meetings with the supervisor(s) are recommended.  | Student (supervisor)                        |
| 7. Submit your thesis for evaluation according to the guidelines of the second-year host university.                             | Student                                     |
| 8. Present final thesis (e.g. online thesis seminar)   | Student                                     |

Note: Some of the partner universities stipulate that the thesis period lasts for a fixed length of time. You and the thesis supervisor should determine the deadline in accordance with the host university's guidelines.

### 3 Guidelines for writing your thesis

#### 3.1 General

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:** Use the template of your host university
- **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. In the case of laboratory work, you should describe the applied laboratory analysis/measurement methods. 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. 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. A recommended practice could be to structure the discussion section into a critical acclaim of (i) the material, (ii) the field, (iii) laboratory and (iv) statistical analysis methods, and finally (v) of the results.
- **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. Also in case the thesis will be submitted to a specific scientific journal, those guidelines should be followed.

### 3.3 References

It is very important that you give proper references when making statements from the literature. References acknowledge the others' work 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 changes in the litter traits affect the soil organisms (Saetre and Bååth 2000).
- 2) Todo et al. (2019) investigated coarse-root anchorage in a Japanese coastal pine forest.

“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: Todo et al. (2019) or (Todo et al. 2019). In the references it would be presented as follows:

Todo, C., Tokoro, C., Yamase, K., Tanikawa, T., Ohashi, M., Ikeno, H., Dannoura, M., Miyatani, K., Doi, R. and Hirano, Y. 2019. Stability of *Pinus thunbergii* between two contrasting stands at differing distances from the coastline. For. Ecol. Manage. 431 (1): 44-53.

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) Sah, P., Bryant, C.L., Leppälammi-Kujansuu, J., Lõhmus, K., Ostonen, I. and Helmisaari, H.-S. 2013. Variation of carbon age of fine roots in boreal forests determined from <sup>14</sup>C measurements. Plant Soil 363: 77–86.
- 2) Ma, Z., Li, L. and Guo, D. 2017. Variation of root anatomical traits: from tropical forests to deserts. In: Book of Abstracts IUFRO 125th Anniversary Congress, IUFRO, Freiburg, p. 709.

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, Ū.A., Men'shikov, V.N. 1990. Tehnologiâ I Mašiny Lesosečnyh Rabot. Dopušeno Gosudarstvennym Komitetom SSSR Po Narodnomu Obrazovaniû v Kačestve Učebnika dlâ Studentov Vysših Učebnyh Zavedenij, Obučaûšihsâ po Special'nosti "Lesoinženernoje 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](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 recommended 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.

## 4 MSc online thesis seminar

The Thesis Seminar deals with the different forestry topics that the MSc European Forestry students have chosen as subjects for their master's theses. The aims of the seminar are:

- to increase awareness of different master's theses carried out by the students of the MSc European Forestry programme
- to provide a platform for online viewing of the students' theses presentations
- to provide a forum for discussions on each of the topics
- to facilitate the distance interaction of students, graduates and staff of the MSc European Forestry programme

### *How does it work?*

You prepare a presentation about your master theses (10–15 minutes, about 7 slides) with the main focus on the results. The presentations include videos of the speakers narrating the different slides, creating a virtual environment where the viewer can play the presentation, or parts of it, as many times as needed.

You will participate in the discussion forum by commenting and asking questions on the Moodle course site where you can log in with your UEF username and password within a week after the presentation is made available online. The presenter will have an

additional week to give feedback to the participants and answer their questions. After this period, the discussion on the Thesis presentation will be closed.

Further information and detailed instructions are available at:  
<https://www.uef.fi/en/web/mdp-europeanforestry/thesis-seminar>