



**UMB**

**Department for Plant and Environmental Sciences  
(IPM)**

**Guidelines for Master of Science  
Thesis**

## General information on Master of Science (master's) theses

A master's thesis of either 30 or 60 ECTS is written in the final phase of the master's degree study programme at the University for Life Sciences. A master's thesis of 60 ECTS **must** include an additional special syllabus whilst a master's thesis of 30 ECTS **may** include a special syllabus. The master's thesis (and any special syllabus) is debated/defended in an oral discussion where the internal and external examiners are present. Please note that the semester fee must be paid and your master's thesis registered within the deadlines. The results are available within 6 weeks (30 working days) from submission date.

The non-authoritative English translation of the relevant rules and regulations can be found on: <http://www.umb.no/4095>:

Regulations for Studies at UMB, Chapter 12  
Regulations for Examination at UMB, Chapter 6  
Regulations for awarding the Master's Degree at UMB.

It is important that you are familiar with the rules and regulations and keep the deadlines.

We wish you all the best with your work on your master's thesis.

UMB, 15.01.2010

Trond Børresen  
Leader of Education

Ingrid F. Bugge  
Study coordinator

## **Guidelines for the master's thesis**

The aim of these guidelines is to clarify the objectives of the master's thesis to give advice and guidance on the presentation of the thesis.

### **1. Objective of the master's thesis**

The master's thesis is the final phase of a study programme at UMB. The thesis is an independent work where you shall document your independence, understanding, reflection, maturity and the analytical abilities you have gained during the study programme. The thesis is also a specialisation and continuation of a central part of your scientific field.

### **2. A master's thesis shall satisfy elementary requirements of research:**

- It shall seek new comprehension and knowledge with a scientific approach on clearly defined issues.
- It shall be produced and presented in a systematic way with depth and precision.
- It shall clearly state the sources used in the thesis, how others and own material are used, the results are achieved and the conclusions are drawn.

### **3. Method of approach and deadlines**

You are basically responsible for your choice of subject for your thesis, your main supervisor, and the production of the thesis. The main supervisor must either be employed in an academic position at UMB or be an Adjunct Professor or Adjunct Associate Professor at UMB.

You may have a co-supervisor employed in another institution/company. The co-supervisor has the main continuous observation of the work, while the supervisor at UMB should look after if the progress is in according to UMB's regulations.

The department will try to assist in choosing the subject of the thesis. Both in a meeting in November and at the Department's web-sites ([www.umb.no/ipm](http://www.umb.no/ipm)) suggestions for subjects will be presented. Representatives from the various scientific fields will present their suggestions to topics of the master's thesis. It is possible to choose subjects other than the suggested ones; in that case, however, you have to contact a relevant teacher/researcher. You are advised to contact a relevant supervisor as early as possible to discuss the topic, the supervisor might advise you to take some special courses before you start on your thesis.

The master's thesis can be a fine occasion for independent, in-depth research and an informative practice during the study period. If you decide on a thesis that requires work over several seasons and considerable work during the semesters, it is important to be aware of how this can affect other parts of the study period. The supervisor, together with the student, is responsible that work spent on the thesis is not at the expense of other parts of the study period. Please note that semester papers and similar cannot be used directly in a master's thesis.

Students on literary study programmes are recommended to create an index file for each book or article right from the start that gives complete and exact literary information (see point 6) together with a condensed account of the contents. You are not allowed to report other authors' work without stating from where and whom the material is found. If not, this is plagiarism and will be considered as cheating.

Before you start, you have to complete some forms (see the table below). The completed forms must be signed by the student and the supervisor(s) and submitted to the study coordinator. The study coordinator is responsible for the departmental signature.

<b>Form</b>	<b>Deadlines</b>
”Notification for choice of Master’s thesis”	15 May, first year of the master’s degree programme (alt. Dec 15 <sup>th</sup> )
”Contract – Master’s thesis”	Start of master’s thesis
”Agreement for Special Curriculum”. Relevant for those who write a master’s thesis with 60 ECTS. Optional for master’s thesis with 30 ECTS.	Start of master’s thesis
<b>Other relevant forms</b>	
”Agreement for laboratory and fieldwork”. Relevant for lab.work in the Soil building (see attachment I)	Start of master’s thesis
”Confidential Master’s Thesis – time period” Only relevant in cases where the thesis is confidential for a limited time period.	Start of master’s thesis
”Registration Form for Submission of Thesis”.	Submitted together with master’s thesis

(The forms are available at [www.umb.no/sit](http://www.umb.no/sit) - forms)

**Deadline for submission of Master’s Thesis:**

May 15<sup>th</sup>, the second year of the master’s programme at 15.00 hours or December 15<sup>th</sup> at 15.45 hours.

If you write a master’s thesis and your main supervisor is a staff member of IPM, the registration code is M30-IPM or M60-IPM for 30 and 60 ECTS theses, respectively. Don’t forget to register for the master’s degree at studweb to ordinary deadlines.

A student who writes a 60 ECTS thesis shall also register his/her special syllabus of minimum 5, 10 or 15 ECTS (5SPESI-IPM, 10SPESI-IPM, 15 SPESI-IPM). For students who write a 30 ECTS thesis, such registration is optional.

A responsible supervisor shall formally be appointed by the responsible department after May 15<sup>th</sup> in the first year of the study.

An application for an extended submission deadline (see Regulations for Studies at UMB, Chapter 12 with supplementary provisions ad 12-1) can in certain cases be approved by the Board of the Department (delegated to the Leader of the Education). The application must be fully documented and include a recommendation from the supervisor and a revised study plan that has been approved by the department (leader of Education Committee). The application must be send to study coordinator at the responsible department. Deadline, April 15<sup>th</sup> the second year of the master’s programme or November 15<sup>th</sup> the second year of the master’s programme.

The master's thesis shall be debated/defended in an oral discussion where the internal and external examiners are present. Students with special syllabus shall be examined in these at the same time as the oral debate/examination.

#### **4. Practical and economic assistance from the department for master's thesis**

The master's thesis is a part of the study programme and expenses connected with it shall in principle be covered by the students. UMB, however, is willing to make provisions so that the production of the thesis does not become an economic burden to the students.

The department of IPM offers the following assistance:

1. Study places for master students are available in the Towerbuilding (Tårnbygningen) on in the Soilbuilding (Jordfagbygningen). Contact person: Anne Grethe Kolnes, Soil building
2. In certain cases, expenses such as travel, board and lodging can be refunded. This must be agreed by the supervisor.
3. A budget must be set up in the contract together with the supervisor. Any applications for economic support outside the department must be done in consultation with the supervisor.
4. The master students themselves are responsible for any copying. Staff work places and equipments that are reserved for use by the staff must not be used by the students.
5. If your main supervisor is a staff member at IPM, the department will pay/refund up to kr 400,- for copying a master's thesis of 30 ECTS, and kr 500,- for a master's thesis of 60 ECTS. Requisitions are obtained from the study coordinator. Rotator has a system for copying master's theses.
6. The University Library advises and assists students with literature research for their master's thesis and use of Reference manager/EndNote.
7. Some students will choose master's theses that involve registration of data or experiments either in our laboratories, experimental sections, in SKP or other places. Experiments and registrations should be thoroughly prepared in good time beforehand. It is important to have a good overview of planned experiments before starting the research. Students with laboratory work in the Soil building shall complete and submit the relevant form (appendix I) together with the forms "Notification of choice of master's thesis" or "Contract for the master's thesis".

#### **5. Advice on composition of master's thesis**

**Front page:** Indicate that it is a master's thesis at UMB, name of the Department, title of topic, author, year and studyprogram. The thesis shall be published using the official UMB title page design ([www.umb.no/sit](http://www.umb.no/sit) - templates).

**Preface/ Foreword.** The contents of the preface should be individual and relevant to each case. Consider whether the subject should be described and defined, if the issues should be

examined in depth, and if earlier work on the subject should be referred to. It is also usual to give a short account in the introduction of the reason for choosing the subject of the thesis.

**Summary (abstract):** A short summary

**Table of contents:** Show the chapters, tables, figures and attachments

**Introduction:** Present the objectives, a short overview over earlier work, history

**Literature/theory:** Former research could be presented

**Material and methods:** Describe the material and methods used in the thesis in detail so that an outsider is able to repeat the experiments based on the material and methods.

**Results:** Present the results, prospective tables and figures

**Discussion:** Explain and interpret the results based on earlier research in the field.

**Conclusion** should be short and give the reader information on new and interesting knowledge that the work has lead to.

**List of references (the literature list)** shall give information on all written material the author has used directly in the paper and in the references in the text. All references in the text should be found in the list of references and all references in the list of references in the text. Complete and exact references are absolute requirements.

**Prospective attachments** (questionnaires, plates etc.)

**More about the different parts:**

Preface /Foreword. Explain the background and the motivation for why you chose the topic; when and where the work was done, who helped and supported you, who was your supervisor(s), other practical information of interest for the reader.

The summary (abstract)

The summary should be short and give a total picture of the thesis: the issues, material basis/methods and results. The presentation can also be made in points. The summary will show whether the author has successfully distinguished between what is important and what is not important and will show ability to give a clear and concise presentation.

The table of contents

The table of contents shall show the organisation and division of the thesis using headed chapters and under-chapters with short, precise heading. The most usual chapter classification is the decimal system (maximum three decimals).

Start

A short introduction of the topic. Assess, should the topic be defined more precisely, should the way of presenting the problems be deepened, should earlier work at the same topic/area be mentioned.

The main section (Results and Discussion)

The organisation of the main section, will vary considerably according to the theme of the thesis. A normal weakness is that a student partly overlooks literature and theory on the subject and loses him/herself in the data, and partly processes the results too little (tested, concentrated, systemised etc). An academic analysis should raise issues that are drafted and analysed from several angles. Conclusions should be drawn based on the results and earlier academic works.

#### The conclusion

The conclusion should be short and give the reader information on new and interesting knowledge that the work has led to. The conclusions must be drawn against the background of results from former scientific works. For example, you may assess the result from your work and the need of more research in the field.

#### The list of references

The list of references shall give information on all written material that the author has used directly in the paper and in the references in the text. It shall also be a pointer for those who wish to study the original literature. Complete and exact references are an absolute requirement. Remember to be consequent.

Tables and figures should be placed in the text.

### **6. Advice on presentation**

Define terms and scientific expressions the first time they are used or make a separate list. Write the text with usual line spacing (1.5); longer quotations, footnotes, etc in single line spacing. The left margin should be 2.5 cm (for binding) and the right margin 2 cm. If the thesis is long, it is less bulky to copy/print on both sides of the page.

When additional information would disturb the flow of the presentation, footnotes can be used to a limited extent to provide information that has a relevant connection with tables or particular points in the text. Reduce the use of shortening words, use standard shortenings. Write the first time the whole word with the shortening in parenthesis, and thereafter only the shortening.

In the preface, write the persons' names in full and with titles. In the actual text, write only the surname with initials. Initials are added to avoid confusion.

#### **Literature references:**

##### **A. Books**

1. Author(s)
2. Year of printing
3. Title (prospective subtitle, series and edition).
4. Publisher. Place of printing.
5. Number of pages
6. ISBN number

Example:

Hansen, O., Solem, T., Olsen, P. & Harstad, T. 1994. Plantelære. Landbruksforlaget, Oslo. 351 s. ISBN 82-529-1569-8.

## **B. Articles in journals**

1. Author(s)
2. Year of printing
3. Article's title in the journal
4. Title of journal or series where the work is made public.
5. Year/volume number. If necessary, instalment number in parenthesis.
6. First and last pages of the article

Example:

Sageidet, B. 2005. Soil pollen analysis of a pod sol and clearance cairn confirms Bronze Age Agricultural at Orstad. *Journal of Nordic Archaeological Science* 15: 57-76.

Beckmann, M. & Krogstad, T. 2005. A phosphorus Index for Norway. *Acta Agric. Scand.* 40: 205-213.

The references in the text: Sageidet (2005) or Beckmann & Krogstad (2005). If there are several authors, the surname of the first author should be given and et al. e.g. Hansen et al. (1994) or (Hansen et al. 2004). If an author has several publications in the same year, lower case letters should be used after the year, e.g. 2005a, 2005b.

Give the tables an adequately descriptive title, and table headings shall be such that the table can be understood independently of the text. The same applies to figures, but here the text must be placed under the figure. Tables and figures shall also be numbered and interpreted and commented on in the text, but not retold. The tables and figures that should be included in the text depends on a number of conditions: If they give more or better information than normal text, size, if they are central to the presentation, etc. Evaluate carefully what to include in the text and or in an appendix.

The language of the thesis is important. The thesis should be short and easy to read without being imprecise or naive. Avoid unnecessary foreign words, technical jargon, repetitions, emotional phrases and language (eg. indignant) and be consistent. Pronouns are often a source of problems ( "one" and "some people", "I" and "we" should only be used when a personal reference is needed).

Plan sufficient time for reviewing the manuscript Delete unnecessary contents, rewrite difficult sentences, reconsider chapter names and divisions, control references to literature and pages, figure numbers, table headings, etc. Many papers are spoiled by not being adequately proof read.

## **7. Some considerations when evaluating a master's degree thesis**

- Are the problems and conclusions clearly formulated?
- Have essential literary sources been considered? Are the sources clearly stated?
- Are your own investigations (methods, materials, statistics etc) satisfactorily described?
- Are language, terminology and method of presentation clear and precise?
- Is the thesis edited in an orderly manner?
- Does the thesis show methodical work and good understanding of the subject?  
Is there correspondence between approach to problems, analysis and conclusion?
- Does the summary give a good total picture of the thesis?
- To what extent is original material and new knowledge presented?

- How much has the student worked independently?
- A plagiarism test should be taken.

## **8. Relevant literature**

Before choosing the topic for the master's thesis, it is useful to obtain an overview of former major subject theses and master's theses. These can be found in the library at the Department of Plant and Environmental Sciences (Soil building) or the University Library in the Tower Building.

## **9. Submission of the master's thesis**

Four printed and bound copies of the degree thesis shall be stamped at the UMB/Student Information Centre (SIT) and one electronic version (CD) in pdf-format. (Unless otherwise agreed, the copy in PDF format will only be accessible to library personnel). SiT forwards one printed copy to the main University Library. The other three copies shall be submitted by you to the study administration in the Soil building, and the study administration will forward a copy both to the sensor and the supervisor. The local library keeps the fourth copy.

The Registration Form for Submission of Thesis for a Degree ([www.umb.no/sit](http://www.umb.no/sit) -forms) has to be submitted to SiT together with a bound copy of the degree thesis.

## **10. Check list after master's thesis has been submitted**

- You are responsible for clearing out your work space.
- If you have registered data on a PC, this must be deleted/removed.
- Borrowed books and journals must be returned.
- Borrowed keys must be returned.

## **11. Guidelines for oral examination**

### **Guidelines for oral examination/defence of master's thesis of 30 and 60 ECTS at IPM.**

1. As with other oral examinations, examination/defence of a master's thesis is public unless the implementation of the examination requires the opposite (Examinations Regulations for Section 4-6).

2. The supervisor is responsible for implementing the examination/defence of a master's degree thesis. Date, time, place and maximum duration of the examination shall be agreed with the external examiner and the student as soon as possible after submission of the thesis. The supervisor is responsible for posting notices together with the study coordinator.

3. A Master's degree thesis (30 ECTS) is concluded with a thesis evaluation, which shall contain an oral discussion with an internal and an external examiner as part of the thesis's assessment.

As part of the thesis evaluation, an oral examination of a special syllabus of 5, 10 or 15 ECTS **can** be held, in addition to the 30 ECTS. (Examination Regulations, Section 6-2).

4. A Master's degree thesis (60 ECTS) is concluded with a thesis evaluation, which shall contain an oral discussion with an internal and an external examiner as part of the thesis's assessment (Examination Regulations, Section 6-3).

As part of the thesis evaluation, an oral examination of a special syllabus of 5, 10 or 15 credits **shall** be held, in addition to the 60 ECTS.

5. The aim of the thesis discussion is to give the examinee feedback to his/her Master's thesis, as a supplement to merely giving a grade. It also gives the examiner a broader basis for marking the thesis.

- The examiner presents a general assessment of the positive and negative aspects of the thesis.

- The examiner asks the student more specific questions on parts of the thesis in order to assess the student's judgement, understanding, effort and independence. The thesis supervisor is able to make supplementary comments. This discussion is not separately marked.
  - The discussion can lead to an adjustment in the final mark for the thesis. It is the final mark that the candidate is informed about and which is included on the transcript of grades.
  - If a student does not show up for the oral thesis evaluation, his/her thesis is marked as "absent". The student then has to submit a new and/or a revised version of the master's thesis. This re-submission can be made no earlier than three (3) months after the grading deadline. A new contract and project plan must be prepared.
  - Students who write (cooperate on) a joint thesis, must in their cooperation agreement commit themselves to attending the oral thesis evaluation.
  - In exceptional cases, students submitting a joint thesis can conduct individual oral thesis evaluations. Justified applications for individual discussions must be submitted to the department at which the students prepared their thesis. In such cases, the final grade shall be individually determined for each student, independently of the other thesis partner(s).
  - If a master's thesis is given the grade F (fail), the examiners and student(s) shall jointly consider if there is any basis and justification for conducting an oral thesis evaluation. The special syllabus is marked with a letter grade, and the syllabus title (in Norwegian and English) and credits achieved are entered in the final certificate.
6. The examination should take from 30-60 minutes.

## **12. Distribution of supervising and censoring hours for the master's theses**

In accordance with the Study Regulations of the Norwegian University of Life Sciences (UMB) with supplementary provisions § 12-4, students have the right to 40 hours of supervision including censoring of a 30 ECTS master's thesis, and 80 hours of supervision including censoring of a 60 ECTS master's thesis.

Suggested distribution of hours for supervising and censoring master's degree thesis:

	30 ECTS	60 ECTS
Supervising	30	70
Censoring, examination with preparation	10	10
Sum	40	80

## **13. Publishing/Rights**

A thesis shall not be published as an UMB publication before it is assessed and given a pass mark.

The department and/or the main library may publish the thesis on UMB's Intranet. In case of other publications of the thesis or parts thereof, the student(s) shall be notified beforehand and given credit accordingly.

Both the student(s) and the responsible department keep the rights to the thesis. Both parties must approve of the duplication and distribution of the thesis.

**Appendix I.**

**Master's thesis at the Department of Plant and Environmental Sciences (IPM)**

Agreement for laboratory and fieldwork

To be used for students who will be doing analyses at the research laboratories in the Soil building (Jordfagbygningen).

To be completed together with the supervisor and laboratory leader Tore Krogstad, Soil-building.

To be submitted to the study coordinator together with *Notification of choice of Master's thesis*.

Student's name and study programme: .....

Post address, e-post: .....

Main supervisor, name and department: .....

Additional supervisor, name and department: .....

Technical supervisor, name and department: .....

Responsible department: .....

Field and laboratory work:

Working title of the thesis: .....

.....

Extent of samples to be taken, no. of samples: .....

.....

Start of taking/analyses of samples: .....

Finish of taking/analyses of samples: .....

What parameters will be measured? .....

.....

What will the student him/herself analyse? .....

.....

Financing plan for field work: .....

.....

Financing plan for laboratory work: .....

.....

Does the student full fill the IPM's requirements for prerequisite knowledge in chemistry/laboratory work? The requirements will be in accordance with the analyses the student will be doing.

What courses and year: .....