Assessment Guide Master´s Theses

DEPARTMENT OF EARTH SCIENCE

UNIVERSITETET I BERGEN

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Background

This guide* is a collection of guidelines and relevant rules for assessment of master´s theses at the Department of Earth Science, University of Bergen. It includes both national guidelines, and regulations at the University of Bergen and the Faculty of Mathematics and Natural Sciences, as well as current practices at the department.

The purpose of this guide is to ensure that the candidates, the supervisors, and the examinators have a common understanding of the regulations that are in use, which requirements are set for a master's theses, and the use of grading system. The goal with this guideline is to achieve a consistent evaluation of master's theses at the department.

The Program Board in Earth Science, Department of Earth Science

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National description of grades

Descriptions of grades for master's theses in mathematics, natural sciences and technology (MNT) in Norway were introduced in 2003. It describes all grades from A to F in the following way: (1) general comments, (2) theoretical overview, insight, and choice of methods, (3) manner of completion (level, technical skills), (4) research and development, (5) presentation.

Grade	Level	Description
A	**Excellent**	**An outstanding thesis which clearly demonstrates a talent for research and/or originality, in a national perspective.** - The candidate has very good insight into the scientific theory and methods in his/her field and has demonstrated scientific knowledge at a very high level. The objectives of the thesis are well defined and easy to understand. - The candidate is able to select and apply relevant scientific methods convincingly, has all the technical skills required for the work, can plan and conduct very advanced experiments or computations without help, and works very independently. - The thesis is considered very extensive and/or innovative. The analysis and discussion have an extremely good scientific foundation and justification, and are clearly linked to the topic that is addressed. The candidate demonstrates extremely good critical reflection and distinguishes clearly between his/her contributions and the contributions from others. - The form, structure and language in the thesis are at an extremely high level.
B	**Very good**	**A very good thesis that is clearly and positively distinguishable.** - The candidate has very good scientific knowledge and insight into the scientific theory and methods in his/her field. The objectives of the thesis are well defined and easy to understand. - The candidate is able to select and apply relevant scientific methods soundly, has almost all the technical skills required for the work, can plan and conduct advanced experiments or computations without help, and works very independently. - The thesis is considered extensive and/or innovative. The analysis and discussion have a very good scientific foundation and justification, and are clearly linked to the topic that is addressed. The candidate demonstrates very good critical reflection and distinguishes clearly between his/her contributions and the contributions from others. - The form, structure and language in the thesis are at a very high level.
C	**Good**	**A good thesis.** - The candidate has good scientific knowledge and insight into the scientific theory and methods in his/her field. The objectives of the thesis are generally well defined, but may contain some inexact formulations. - The candidate uses the relevant scientific methods satisfactorily, has most of the technical skills required for the work, can plan and conduct quite advanced experiments or computations without help, and works independently. - The thesis is considered good with elements that are creative. The analysis and discussion have a good scientific foundation and justification, and are linked to the topic that is addressed. The candidate demonstrates good critical reflection and usually distinguishes clearly between his/her contributions and the contributions from others. - The form, structure and language in the thesis are at a good level

Grade	Level	Description
D	**Satisfactory**	**A satisfactory thesis.** - The candidate has quite good scientific knowledge and insight into the scientific theory and methods in his/her field. The objectives of the thesis are defined, but may contain some inexact formulations. - The candidate is generally able to apply relevant scientific methods, has the main technical skills required for the work, and can plan and conduct experiments or computations without help. The candidate works independently to some extent, but needs quite close supervision to achieve satisfactory scientific progress. The candidate may have problems utilizing the research group's expertise in his/her own work. - The thesis is considered satisfactory. The analysis and discussion have a satisfactory scientific foundation and justification, and are linked to the topic that is addressed, but there is room for improvement. The candidate demonstrates his/her ability for critical reflection, but has problems distinguishing clearly between his/her contributions and the contributions from others. - The form, structure and language in the thesis are at an acceptable level.
E	**Sufficient**	**A thesis that is acceptable and satisfies the minimum criteria.** - The candidate has sufficient scientific knowledge and insight into the scientific theory and methods in his/her field. The objectives of the thesis are described, but are vague and imprecise. - The candidate is able to apply some relevant scientific methods, has a minimum of technical skills required for the work, and can plan and conduct simple experiments or computations without help. The candidate achieves limited scientific progress without close supervision, and has problems utilizing the research group's expertise in his/her own work. - The thesis is considered limited and somewhat fragmented. The analysis and discussion have an adequate scientific foundation and justification, but ought to have had a better link to the topic that is discussed. The candidate demonstrates sufficient critical reflection, but may have problems distinguishing between his/her contributions and the contributions from others. - The thesis is mostly acceptable, but has definite shortcomings with respect to form, structure and language
F	**Fail**	**A thesis that does not satisfy the minimum requirements.** - The candidate does not have sufficient scientific knowledge and insight into the scientific theory and methods in his/her field. The objectives of the thesis are not clearly defined or are lacking. - The candidate demonstrates a lack of competence in the use of scientific methods, does not have the required technical skills and independence for the work, and has scarcely utilized the research group's expertise in his/her own work. - The thesis is considered very limited and fragmented. The analysis and discussion do not have an adequate scientific foundation and justification, and are loosely linked to the topic that is discussed. The candidate does not demonstrate sufficient critical reflection, and does not clearly distinguish between his/her contributions and the contributions from others. - The thesis has major shortcomings with respect to form, structure, and language.

Regulations concerning studies at the University of Bergen and supplementary rules for the Faculty of Mathematics and Natural Sciences

Below are paragraphs from the «Regulation concerning studies at the University of Bergen (study regulation)» and the «Supplementary rules to Regulations concerning studies at the University of Bergen (study regulation) – Faculty of Mathematics and Natural Sciences » which are to be used (from 01.01.2024) for master's theses and master's examinations at the Faculty of Mathematics and Natural Sciences.

Note that the original Norwegian regulations (https://lovdata.no/dokument/SF/forskrift/2023-06-15-1359/ and https://www.uib.no/matnat/58067/utfyllande-regler-til-forskrift-om-studium-ved-universitetet-i-bergen-det-matematisk) are the official rules. The English translation is not official. In the event of any inconsistency, the Norwegian versions are the valid one.

Examiners, § 9-8(2) and § 9-8(4)

(2) In these cases, at least two examiners are required:
- a) oral, practical, performing and/or creative exams, where at least one of the assessors is usually external,
- b) grading of master's projects, where at least one of the assessors must be external, and
- c) appeals grading, where at least one of the assessors must be external

(4) An external examiner, pursuant to the second paragraph, is a person who is not employed in a main or secondary position at UiB at the time of grading and who has not participated in the teaching of the course that semester.

The Faculty of Mathematics and Natural Sciences supplementary rules for § 9-8 (1)

The provisions of the Administrative Procedure Act (§6) regarding impartiality apply to grading. For master's theses, the examiner should not:

- Be closely related to the master's candidate, supervisor, or co-examiner.
- Have had significant academic collaboration with the master's candidate, supervisor, or co-examiner in the last three years.
- Be aware of other factors that could compromise impartiality in assessment.

The Faculty of Mathematics and Natural Sciences supplementary rules for §7-2 (4)

A master's thesis is concluded with an oral master's degree examination. All the master's curriculum courses must be completed and passed before the final master's degree examination. The examination consists of a public presentation lasting at least 30 minutes, during which the student provides an overview of the thesis. A tentative grade for the thesis should be decided before the presentation. Following the presentation, there is an oral examination/discussion about the thesis with an external examiner, an internal examiner or members of the examination committee and supervisors. The presentation, along with the subsequent oral examination, may adjust the final grade for the thesis.

Criteria for assessing Master's theses at the Department of Earth Science

When evaluating master's theses at the Department of Earth Science, the following points should be taken into account. For more detailed descriptions, see page 8 (for examiners) and page 10 (for supervisors). Additionally, a standardized and guiding assessment form (not mandatory to fill out) has been developed based on these points.

Independence

- The form and extent of supervision provided
- The candidate's contributions compared to the supervisor's
- Original ideas and input
- Planning and how the student performed field and/or laboratory work
- The level of assistance ("corrections") during the writing process

Theory and research questions

- Selection of theory relevant to the research question.
- Understanding
- Presentation

Literature and the use of references

- Overview of relevant literature
- Active use of references in discussions.
- Technical quality of the reference list

Scientific maturity

- The capability to assess the quality of the data used and potential sources of error
- Emphasis on different data in relation to their relevance for addressing the research questions
- Interpretation of the results
- Is there logical connection between results and conclusions
- Discussion of own results in relation to already existing literature
- Formulation of hypothesis
- Choice of research methods in relation to the research questions
- Critical reflection

Written Presentation

- Structure
- Balance and consistence between different parts of the thesis
- Is the presentation logical
- Language and formulations skills
- Precise use of language
- Use of tables and figures

Detailed description of assessment criteria Master's theses – for EXAMINERS

(Evaluate to what extent the candidate has achieved the described goals for each point below.)

Technical grounding

Is the theoretical and technical foundation clearly described, enabling the work to be placed in the context of relevant international research?

Theoretical insight

Does the work, in particular the introduction, demonstrate that the candidate has advanced knowledge of relevant theory and methods, and particular in-depth insight into a specific field that is applicable to the thesis?

Goal Description

Are the goals and/or hypotheses for the thesis presented in a clear and comprehensible manner?

Skill Level

Does the candidate master relevant methods and use these in the thesis in an applicable and integrated manner?

The work

Does the work show creativity and/or is the work innovative? Does the work give the impression of being particular comprehensive? How is the quality and significance of new knowledge/results generated in the work assessed?

Analysis and Discussion

Is the analysis, interpretation/synthesis, and discussion well grounded, well-justified, and clearly linked to the research questions? Is the discussion at a high level? Can the candidate apply their knowledge and skills to new areas and place the results into a larger context?

Critical Reflection

Does the candidate demonstrate a reasonable understanding of the value of the results? Does the candidate approach sources of information in a critical manner? Does the candidate consider and evaluate factors of uncertainty such as methodological errors, data errors, etc.? Does the candidate analyse relevant ethical questions related to technical, professional and research matters? Does the candidate make and justify reasonable suggestions for further developments or discuss the potential for such?

Own contribution/achievement

Is the candidate able to clearly distinguish own contribution from that of others? Does the written work include a conclusion summarizing the results in a good way, along with an assessment of the extent to which the objectives have been achived? Is there a sensible and reasoned proposal for further investigations or potential for such?

Structure

Does the work demonstrate an organized structure (normally IMRaD: Introduction, Methods, Results and Discussion)? Is the work generally clear?

Language

Is the candidate able to present issues and results with the necessary technical precision? Is the work easily comprehended and does it demonstrate a good command of the language used?

Form

Is the style used for references, figures and tables consistent? Is the quality of figures and tables acceptable? Does the candidate have a good command of relevant specialist terminology?

Detailed description of assessment criteria Master's theses – for SUPERVISORS

Theoretical insight

Has the candidate generated important elements/issues relevant to the thesis? Does the candidate use relevant resources (databases, etc.) to acquire current and applicable literature and background material for the work?

Skill level

Does the candidate master relevant methods and use these in the thesis in an applicable and integrated manner?

Working methods

Does the candidate demonstrate the ability to work in a planned and methodical manner?

Working effort

Does the candidate demonstrate a high degree of effort and motivation?

Independence

Is the candidate able to work and use relevant methods in an independent manner, and conduct an independent piece of research or development under supervision? Does the candidate show personal initiative? What type of help and supervision has the candidate received during the different phases of the work? Is the candidate able to draw on the expertise of the research group and apply this to his/her own work?

The work

Does the work demonstrate creativity and/or contribute to innovation/creative thinking? Does the work appear to be particular extensive or comprehensive?

Deadlines

A pre-requisite for assessment is that the work is submitted within the defined deadline.


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