ASSESSSING MASTER'S THESES
Attachment in to «Sensorveiledning»

Department of Mathematics
University of Bergen

For Master students starting their study fall 2012 or later

New guidelines

During the academic year 2012/2013, new guidelines for grading master's theses in mathematics, natural sciences and technology came into effect. The new system applies to students who began a 2-year master's degree during autumn 2012, and students who started the last two years of a 5-year master's degree in autumn 2012.
Using the new definitions of grade categories the whole grading scale will be used. The master's thesis itself, and how it is conducted, will not be affected.

Why redefine the grading system?

In 2003, a letter-based grading system was introduced. Statistics indicate that in grading master's theses, some of the grades in the scale are rarely used. This is the background for redefining the grading system on a national level.
It is important that this change in the grading of theses will not have adverse consequences for students. Consequently, we will ensure that adequate information is distributed to potential employers and other educational institutions. All certificates and diploma supplement documents will include an updated description of the grading system.

Assessments by supervisors and examiners

New guidelines for supervisors and examiners will ensure a unified understanding of the grading system. These guidelines provide detailed explanations and examples regarding the terminology used.
Master's theses must be submitted before the allotted deadline in order to be eligible for assessment. This is included in guidelines for supervisors.

This is an unofficial translation of the "Sensorveiledning" decided by the Programme Committee 25th February 2014.
The Description of grades on the next page is an official English translation.

Description of grades for Master's theses in Mathematics, Natural Sciences and Technology

The grading of master's theses in mathematics, natural sciences and technology is governed by the following descriptions of grades for students admitted to master's studies in the autumn semester 2012 or later.
Each description covers these areas: general comments; theoretical overview, insight and choice of methods; manner of completion – level, technical skills; extent, research and development; 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.

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.

Assessor’s assessment of master’s theses

For each criterion, the Assessor is to assess the candidate’s attainment of the following:

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?

Project result:
Does the work demonstrate creativity and/or contribute to new thinking/creativity? Does the work appear to be particularly extensive or comprehensive? How do you rate the quality and value of the new knowledge/results generated by this work?

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?

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?

Local guidelines

§ 12. Assessment of task
The thesis is graded with letter grades A-F. The grading scale used is in accordance with the definitions and guidelines based on UHR (Higher Education Institutions) general character descriptions.

In the evaluation of the thesis, at least two examiners are required, one of which must be external. The external examiner must not be affiliated with the University of Bergen.

§ 15. Final Master's exam
a) The final oral master's examination will normally be held by the end of the 4th semester, and no later than two months after submission of the thesis.

b) Examination of the entire master curriculum must be successfully completed before the final exam. Examination of a special syllabus may occasionally be on the same day as the examination.

c) After the thesis is submitted and approved, there will be an oral examination. This examination consists of a public presentation of about 30 minutes where the student gives an overview of the thesis. External sensor, internal sensor, or members of a fixed internal examination committee, and the supervisor(s) shall be present at the presentation. A tentative grade of the thesis should be determined before the presentation. The tentative grade is not made known to the student.

d) Directly after the presentation, there will be an oral examination of approximately 30 minutes about the thesis with the external sensor, internal sensor, and supervisor(s). The presentation, together with the oral examination might adjust the final grade on the Master's thesis. After the examination, the student leaves the room, and the supervisor(s) help the sensors by giving their evaluation of the student and thesis. Of particular importance are the supervisor's impressions of the student's completion of the research project, degree of independence, understanding and maturity.

e) The external and internal sensors determine the final grade. The supervisor(s) should leave the room when the grade is determined. It is the final grade that is made known to the student and which appears on the transcript.