

CONCEPT NOTE

Master's theses at the Faculty of Science

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1 Introduction

The bachelor-master reformation has led to a number of changes in many educational programmes, for example concerning the master's thesis. At the Faculty of Science a thesis of 20 credits was expanded to a master's thesis of 30 credits. In this concept note an overview is given of the different aspects of the master's thesis and the faculty vision on these aspects. The text is based on the existing educational concept of the Faculty, enriched by conclusions from discussions within the Working Group Master's Thesis¹ during academic year 2009-2010. Hereby, the possibility remains for the different programmes to add their own accents and to keep a certain autonomy.

¹ The Working Group Master's Thesis was established after request of the dean during the summer of 2009. Members: Iris Peeters (chairman), Bavo Meuwis (secretary), Philippe Muchez (vice dean), Katrijn Dirix, Marc Hendrickx, Steven Huyghe, Johan Quaegebeur, Inge Serdons, Karen Stroobants, Patrick Van Dijck, Lucie Van Hove, Gert Verstraeten

2 Objectives of the master's thesis

As is the case with every programme unit, at the end of a master's thesis a list of objectives should be reached. These objectives are closely related to the attainment targets of the study programme. Therefore, the link with the rest of the programme is very important: which skills do students have when they start their master's thesis? What can be expected?

For the master's thesis the emphasis lies on competences of students to actively contribute to scientific research. At the Faculty of Science the following specific objectives are aimed for and evaluated:

- Formulating research questions with the help of the supervisor, and elaborating the research.
- Acquiring information independently and assessing its relevance for answering the research questions.
- Acquiring attitude to work on scientific research in a team (with colleague master students, PhD students, ...).
- Learning to communicate in a scientific language through collaboration with fellow students and researchers.
- Following up and analysing developments in the chosen area, through training and by making contact with the current research in one of the areas.
- Using adequate experimental or theoretical methods and techniques.
- Critically analysing the results and their interpretation.
- Reporting and presenting the original results in an orderly way and placing the open questions in the right perspective. Linking techniques and results from literature as well as actual research and future research lines with the research.

In order to reach these objectives students should receive enough guidance without restraining their autonomy.

3 Preparation during the rest of the programme

At the start of the master's thesis students are expected to have gained a (thorough) basic knowledge on the subject in the bachelor programme and the first phase of the master programme. Moreover, students already have basic competences in acquiring information independently, analysing this information, communicating on scientific findings, etc. They will further develop these competences during the master's thesis.

Programme units such as "Science communication" contribute to the development of these competences, although orientation policy needs to be taken into account. Not every student who starts a master programme has followed the bachelor programme within the same domain at KU Leuven.

Also, specialised programme units in the master programme are a direct preparation for the master's thesis. Furthermore, they can be a direct link to actual research. Additionally some of the master programmes organise a preparatory programme unit dealing with research skills and/or content-related orientation of the students. The feasibility and content of such a programme unit can be considered in each master programme.

3.1 Examples

In the master of **Geography** the programme unit “Research Seminar” is programmed in the second semester of the first phase of the master. In this course students learn how to analyse a scientific article, in order to extract the objectives and select an adequate method. Based on these experiences students then have to formulate and analyse their own research questions in a start note. Ideally this is done in the framework of their master’s thesis, although it is still possible to change subject afterwards.

An alternative for a specialised programme unit is an internal or external training period, such as for example in the master of **Chemistry**. Within such a training period specific skills can be taught which are not handled in other programme units.

4 Determination of the subject

4.1 Faculty regulations

Supervisors and groups of supervisors (research groups, departments and sections) can make suggestions to the POC regarding specific subjects and/or research subjects (“subjects”) for a specific course programme, or a speciality within a course programme. Proposals must be submitted to the Programme Director (or the respective delegate) for discussion during the last meeting before the Christmas holidays. The POC will determine the admissibility of the proposals for the programme.

The course programme will publish a list with the proposed subjects no later than the first week of the second semester, or by an earlier final date. The published list will enable students from the first phase of the course programme to familiarize themselves with it and to determine their preference. To this end students can contact supervisors and research units.

Late submissions may be added to the list at a later date.

Students can also provide proposals themselves regarding a potential supervisor and research subject outside the list published by the course programme. For this, a motivated request should be submitted to the POC no later than the eighth week of the second semester. After approval of the request, the POC may appoint a cosupervisor to act as point of contact for the course programme and the Board of Examination as regards this Master’s Thesis.

If the POC takes on a case that refers to an individual student’s Master’s Thesis, it will act without the student members but with the addition of the ombudsperson.

After announcing the list and at the latest by the end of the class weeks in the second semester, students must make their preference known to the POC for the allocation of a research subject. They must choose a number of preferred subjects to be determined by the POC. The Chairman of the POC will consult with the respective Head of Department or the respective delegate for the allocation of subjects. The former will ensure that the students’ preferences are followed as closely as possible, the latter will ensure a reasonable distribution of tasks within that department. The monitoring of sufficient staffing and supervisory capacity is their joint task. If desired, the POC can work out a procedure for this. The final allocation will be approved by the POC and announced to the students no later than immediately after the June deliberation of the first course phase of the Master’s programme.

A change of supervisor or subject after the second week of the second course phase of the Master’s programme may only be permitted by the Programme Director in consultation with any research unit and/or Head of Department (or delegate) involved.

If an individual student wishes the procedure to be advanced in connection with a domestic or foreign stay outside of KU Leuven (Erasmus and similar programmes) during the second Master’s phase, he/she should inform the Faculty Administration and contact the Erasmus coordinator before the

Christmas holidays. The Erasmus coordinator will coordinate with the student, the potential supervisor(s) or the research groups and with the Programme Director. No later than during the second week of the second semester, the student will deliver a dossier to the Erasmus coordinator who will submit this for approval to the POC.

4.2 Examples

Each programme decides which system is used to assign subjects to the students.

The masters of **Biology, Biophysics, Biochemistry and Biotechnology, Chemistry, Physics and Astronomy & Astrophysics** use the faculty system (contact Bavo Meuwis). Within this system students express their preferences, based on which the system divides the subjects, hereby giving as many students as possible their first or second choice.

The master of Applied Informatics uses the procedure of the department of Computer Science:

- Subjects are collected centrally from all the research groups.
- They are divided into clusters and placed on a website.
- In May there is an information fair where more information is given to interested students for each subject.
- Each student chooses 5 subjects and spreads 20 points among the subjects. Hereby the most points are given to the most wanted subject, and each subject receives at least 1 point.
- The department assigns subjects to students taking into account the points given by the students, giving them their first or second choice if possible.
- Most of the time this works out pretty well. In case of a problem there is an oral meeting with the students and supervisor: the subject will be divided or one of the students will get his third choice subject.

5 Guidance of the master's thesis

The guidance can vary enormously between different supervisors. This is also related to the big variety in the type of the master's thesis and therefore is not a problem. However, it is important that there is **no under or over guidance**. On the one hand, students have the right to be guided sufficiently and get feedback on their learning process. On the other hand, students must get the opportunity to develop themselves independently.

5.1 Who can be a supervisor

5.1.1 Faculty regulations

All full-time and part-time tenured academic staff members of the KU Leuven who are active within a field of research which fits in with a programme, can supervise Master's students. Doctors with a temporary tenure of the KU Leuven may also act as supervisor, in which case a member of the tenured academic staff will also be appointed to stand as guarantor for the continuation of the supervision, in the event that the doctor-supervisor's mandate ends. A doctor-supervisor may supervise a maximum of three dissertations per year.

A co-supervisor is not necessarily affiliated with the KU Leuven and has extensive expertise in the domain of the dissertation.

In case the master's thesis is done abroad in the framework of an Erasmus exchange, the same rules apply for the designation of the (co)supervisors as at KU Leuven, unless an exemption is allowed by the FPOC.

In case of an interuniversity programme a (co)supervisor or reader of one of the partner institutions can be appointed. In this case the same rules apply for the designation of the (co)supervisors as at KU

Leuven, unless an exception is allowed by the FPOC. In any case, it must be ensured that the proportion of the KU Leuven members is significant and in accordance with the agreements made within the programme.

5.1.2 Remark

- A co-supervisor cannot be a reader.

5.2 Guiding team

The guidance of a master's thesis is sometimes done by postdocs or PhD students and sometimes by the supervisor himself or by cosupervisors. For this reason the criteria in this text are formulated for the guiding team as a whole without making a difference between the mentor and (co)supervisor. The **supervisor** however carries the **final responsibility** for the guidance of a master student and decides which tasks are delegated and to whom. In case of multiple supervisors the final responsibility is assigned to one supervisor.

As PhD students often play an important role in the guidance of master's theses, an extra session on this topic will be added to the educational programme for PhD students starting in academic year 2010-2011.

5.3 Profile of a good mentor

In order to clarify what is meant by good guidance, a profile of a good mentor can be formulated. Hereby the expectations are made transparent for lecturers and students.

In paragraph 5.3.1 and 5.3.2 a profile is formulated for supervisors and mentors of the Faculty of Science based on a norm of minimal guidance and maximal guidance. This profile counts for (co)supervisors as well as daily mentors, whereby the supervisor keeps final responsibility.

5.3.1 Formulation of minimal guidance

A good mentor minimally responds to the following criteria:

- The supervisor is scientifically active and up-to-date within the research domain of the master's thesis.
- The supervisor makes sure that the subject and process of the master's thesis allow the student to reach the objectives as defined by the POC and/or the faculty.
- The supervisor guards the scientific character of the master's thesis.
- The supervisor guards the quality and feasibility of the research plan which originates from discussion between the supervisor and the master's student. . In this research plan the research project (subject, method, ...) is formulated and practical arrangements are made on the deadlines, practical/technical support and guidance.
- The supervisor is responsible for giving enough time to discussion with each student and follows the research closely:
 - He helps with the planning, the development and potentially the refinement of the research.
 - He teaches the student basic techniques that aren't taught in the rest of the programme.
 - He helps the student to place the research in a broad context.
 - He is present when the student presents his work (in seminars, in conversations with the guiding team, ...) en gives feedback to the student.
 - He brings the student in contact with the members of the concerning research unit(s).
 - He advises the student on the process of the scientific project, encourages and challenges the student and makes the student enthusiastic.
 - In dialogue with the student he decides on the structure of the text before the student starts writing.
 - He reads the text for structure and reasoning at least once, whereby he gives feedback to the student.
 - He offers the opportunity to valorise the master's thesis (for example as a paper, an article, an abstract, a presentation, a conference contribution, ...). This valorisation does not need to happen during the academic year of the thesis.
 - He creates a realistic framework that allows the student to finish the master's thesis in time.
 - He evaluates the progress of the work together with the student and refines where necessary.
 - He makes sure that the evaluation criteria are clear and transparent to the student.
 - He gives feedback during the process as well as afterwards.

5.3.2 Formulation of maximum guidance: less guidance, more autonomy

Apart from a minimum guidance the Faculty of Science also defines a maximum guidance, as in case of too much guidance, the student cannot be evaluated properly.

The guiding team must guard that the independence of the student is not threatened and that the student has the opportunity to demonstrate that he reached the goals himself. Over guidance can be a stumbling block in this matter. Moreover, it is not fair towards students with a less intensive guidance. It is the responsibility of the supervisor to inform all members of the guiding team.

The following guideline should be followed:

- The text may be checked maximum one time on language. After this, feedback on the content may still be given. This counts for the supervisor as well as the mentor if there is a mentor.

The consequence of defining a maximum guidance is that not all products will be of very high quality. This may have other consequences, which however do not weigh against the disadvantages of over guidance:

- Some students may not reach the objectives of the master's thesis despite the offered guidance and will therefore **fail**. This is a valid option as in the framework of the bachelor-master structure, a bachelor degree is a final degree. This means that a bachelor degree is no longer a guarantee that a master degree will be reached, as the objectives of both degrees are different. In other words, not every bachelor has the capabilities of reaching master goals.
- In some cases the results of a master's thesis are important for the research of a PhD student, which can lead to over guidance. This may seriously reduce the learning opportunities for the master student, and could lead to unfair situations compared to other master students. If the difference in guidance is too large, the results may give a misrepresented image and lead to an unfair evaluation.
- Sometimes the argument is used that master's theses are very important in case the student applies for a scholarship (FWO, IWT). However, this needs to be put in perspective. For an IWT scholarship, the student is evaluated based on a defence. An FWO scholarship is only for the best 20% students, for whom we can assume that their master's thesis is of high quality.

5.4 Profile of a good master student

To guarantee a qualitative guidance by the guiding team, it is important to formulate what can be expected of a master student. This is done in the profile below, which shows a general framework that can be adapted to programme-specific situations.

It is the final responsibility of the master student to finish his master's thesis. Additionally, it is the student's responsibility to use the guidance which is offered by the supervisor or by the programme.

In the framework of the master's thesis the following can be expected of the student:

- The student is thoroughly informed regarding the expectations concerning the master's thesis (prerequisites, general objectives, procedure, evaluation criteria).
- The student shows interest in the research domain of his master's thesis.
- The student is partly responsible for the quality of the research plan which originates from discussion between the supervisor and the master's student. In this research plan the research project (subject, method, ...) is formulated and practical arrangements are made concerning the deadlines, practical/technical support and guidance.
- The student follows the agreements which are written in the research plan and were made in mutual agreement between him and his supervisor.
- The student actively seeks contact with his supervisor and potential mentors to keep track of and discuss the status of his master's thesis.
- The student is open for suggestions from his supervisor and potential mentors during the process of his master's thesis.
- The student hands in (parts of) the master's thesis in time following the agreed time schedule so that the supervisor has enough time to give feedback.
- The student does not commit fraude or plagiarism. He correctly refers to the literature.

5.5 Timing of guidance

The Faculty of Science recommends that optimally four big feedback sessions are organised on which the supervisor, the mentor if there is one, and the student should be present:

- September - October: discussion of planning
- December - January (could be with oral presentation): progress
- March (could be with oral presentation): progress
- May: discussion of text

During each feedback session the following elements should be discussed:

- Planning: based on activities instead of products as it is often unpredictable how things go
- Process (level of independence, problem solving capabilities, functioning in team, level of creativity, ...)
- Product (results, discussion of results, literature overview, text, ...)

The list with evaluation criteria can be implicitly or explicitly used during the feedback sessions (see paragraph 9). This list is communicated to the students.

It is strongly recommended that the student gives at least one presentation during the process of the master's thesis to be prepared for the final presentation at the defence. Optionally the readers can be involved. With this presentation the students get the opportunity to get feedback on their presentation skills. This is an opportunity students only rarely receive during their programmes.

It is important to know which skills and competences students already have at the start of their master's thesis, especially the competences that are described in the objectives of the master's thesis. This way students can be optimally prepared during their master's programme and guided during their master's thesis.

6 Time spent on the master's thesis

6.1 Study time

A standard master's thesis at the Faculty of Science accounts for 30 credits.

Some exceptions are:

- Master of Tourism: 15 credits (1 year master)
- Master of Applied Informatics: 18 credits (1 year master)
- Master of Statistics: 24 credits (cfr Faculty of Engineering)

This means that between 750 and 900 hours should be spent on a standard master's thesis by the student. This corresponds to an average study time of between 23 and 27 hours a week, if half of the lecture free periods are accounted for (33 weeks).

To check whether these numbers correspond to reality a study time measurement can be organised by a programme. This should be done by means of the "time writing method", whereby the students keep track of the time they spend on their master's thesis.

If a programme decides to organise a study time measurement with **time writing** the following remarks should be taken into account:

- It cannot influence the evaluation of the student.
- It should be decided in advance whether time writing is obligatory or on a voluntary basis. In all cases it should be kept in mind that the results are estimates and not measurements.
- It can be useful to ask the students to hand in their study times weekly or monthly.
- It should be a surplus for the student himself. For example it can be an exercise for their later professional life, where sometimes time writing is also asked.
- Time writing can be used in the guiding process: “what have I already done”, “what do I still need to do”, ... This also leads to feedback for the supervisor.

It is important that students learn how to plan their time. During the master's thesis, the student should be able to plan more independently towards the end.

6.2 Deadlines

6.2.1 Faculty regulations

Sufficient printed copies of this text for the promotor(s) and the readers + one electronic version ([workflow](#)), must be submitted to the coordinator of the master's thesis around the date to be stipulated by the POC and no later than three weeks before the date on which the results will be announced.

6.2.2 Additions

The exact deadlines decided by the POC of each programme should be communicated in time to the students. This is the responsibility of the **coordinator of the master's thesis**. Some programmes have two deadlines: one for the submission of the electronic version and one for the submission of the paper version, to allow minor changes before printing the thesis.

6.3 Influence of the semester system

The introduction of the semester system forced programmes to spread the activities for the master's thesis. Hereby, the break around Christmas and the following exam period can sometimes be experienced as an obstruction for the master's thesis, especially when experimental research is involved (such as tests with living material that cannot be stopped for a few weeks).

In order to deal with this, **deadlines in between** may help to activate students during the break. In the case of serious problems there is still the **possibility** not to follow the semester system during the last master's year. For this, the POC of a programme needs to **apply** at the faculty POC for a change of the system with **exams** only at the **end** of the academic year.

7 Form and products

7.1 Language and layout regulations

7.1.1 Faculty regulations

The thesis of the initial Dutch-taught master's should be written in Dutch. The Master's Thesis can be written in English if a summary in Dutch is added. Students have the right to defend the Master's Thesis in Dutch. The thesis of the initial English-taught master's will be written in English.

The text of the Master's Thesis should preferably be printed on DIN A4 paper and be bound. The first page should have a provided standard layout. [see 6.1.3.]

7.1.2 Language of the master's thesis

There is a **trend** in some Dutch master's programmes to write master's theses in **English**. The Faculty of Science believes that theses in Dutch and in English are equal. The defence committee masters the language of the master's thesis.

7.1.3 Title page of the master's thesis

A **template** for the title page of the master's thesis can be downloaded at <http://wet.kuleuven.be/reglement/master-thesis>, in Word as well as in LaTeX.

Attention! The title page should be in the language of the programme, despite the language of the thesis itself.

- Use the same font type, font size and font colour as used in the template.
- The font size may be smaller in relation to the length of the title.
- The cover itself has to be white.

Only in case of a **joint diploma** (for example Geography, Tourism) the information of the other institution may be placed on the title page. This is done by the programme so that all students of this programme use the same title page.

7.1.4 First page of the master's thesis

At the bottom of the first page the following text should be written concerning **copyright**, in the same language as the rest of the master's thesis:

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In the master of Geography this only counts for students that are registered at KU Leuven.

7.1.5 *Vulgarising summary*

One page needs to be added to the master's thesis with a vulgarising summary, which should be clear for a broad public. This summary should be uploaded through an obligatory field in the metadataform. It is not necessary to include the vulgarising summary in the thesis itself.

The length of the summary is restricted to one A4 page (3500 characters) and needs to be filled in without any layout. For master's theses in Dutch programmes (those written in Dutch as well as those written in English), the vulgarising summary should be in Dutch. For theses in English programmes the language is Dutch or English.

7.1.6 *Binding and printing the master's thesis*

Binding the master's thesis is done with a glued back strip.

For printing the Faculty of Science recommends recto verso on environmentally friendly paper, and reducing the amount of colour figures. The print version for readers may be in black and white, next to a pdf where colour figures can be consulted.

7.1.7 *Layout content*

The master's thesis needs to be consistent in relation to bibliographic and other references. A global list of bibliographic references is provided at the end of the thesis. Finally, references to figures, tables, appendices, and similar structures need to be consistent.

The following items are present in the master's thesis:

- **Preface:** The preface should summarise the general aim of the work. People, offices and companies should be thanked for their support.
- **Summary** (max. 2 pages per language): The summary should present the most important aims and conclusions of the dissertation in a brief text of maximum two pages, written both in Dutch and in English for a Dutch master programme, only in English for an English master programme.
- **List of abbreviations and list of symbols:** These are lists of the most important abbreviations and symbols used in the work, mentioning indices, meaning and measures used
- **Table of contents:** The table of contents should be arranged neatly and must refer to the pages of the different sections (maximum three levels). Preceding chapter one, Roman numerals (I, II, ...) should be used for the page numbering. From chapter one onwards, Western Arabic numerals (1, 2, ...) should be used.
- The **chapters** should include the following:
 - A thorough introduction including the global approach and research methods and outlining the research in a larger context.
 - Results and discussion of the research.
 - A conclusion including a global discussion of the research results. Suggestions for future work may be added here.
- **Appendices:** The appendices should include parts of the research which are essential for the work, but which may hamper the readability of the text, e.g. because of their length (mathematical deductions, experimental data, examples, figures, etc.).

As **font type** a type from the family of Helvetica Neue or Arial is used, which is prescribed by the KU Leuven. For those working in LaTeX the template for PhD's of the Arenberg Doctoral School can be used: https://set.kuleuven.be/intranet-associatie/ADS/guidelines_PhDthesis.htm.

7.1.8 References & plagiarism

It is important that each programme provides **clear guidelines** to the students concerning references and plagiarism, which should be applied in all programme units. In case of the master's thesis a good guidance can help prevent plagiarism. If plagiarism is detected despite all efforts, this needs to be discussed with the ombuds person and the chairman of the Examination Board. More information on the university wide vision on plagiarism can be found at <http://www.kuleuven.be/plagiarism>.

When there are doubts about possible plagiarism TurnItIn can be used as a means to detect plagiarism, for a manual go to https://wiki.associatie.kuleuven.be/toledopedia/index.php/Turnitin_Assignment.

7.1.9 Number of pages

Every programme should give a **directive** to the students on the optimal number of pages of a master's thesis. This does not need to be a binding restriction.

7.2 Oral defence

At the end of the master's thesis the work is defended in front of a **defence committee**, of which at least the supervisor, co-supervisor if there is one, and readers are members. A **chairman** needs to be

appointed to the committee and takes part in different defences to guard the norm consistency (see 9.3). This can be the chairman of the Examination Board or a delegate. The defences are **organised** by the **coordinator of the master's thesis**, who can delegate this task.

At the start of the defence the student gets the opportunity of presenting his work. Next the jury asks questions that can lead to a discussion. The POC needs to agree on the duration of the presentation and the time spent on questions beforehand in order to give all students equal chances. As a guideline we can say that each student has a right to **at least 20 minutes** for the total defence.

7.2.1 Example

In the Master of Mathematics two oral defences are planned:

- A critical defence for the supervisor, readers and research group members of one hour.
- A public defence for colleague students which is vulgarised concerning the content.

8 Submission of the master's thesis

8.1 Submission of the paper version to the supervisor(s) and readers

8.1.1 Faculty regulations

The coordinator of the master's thesis will ensure that a copy is dispatched to each of the readers.

8.1.2 Number of copies

The exact number of paper versions that needs to be submitted is decided by the supervisor. At least a version for each (co-)supervisor and for each reader needs to be foreseen. A version for the faculty is no longer needed.

8.2 Electronic submission

8.2.1 Goal

Since academic year 2009-2010 all master's theses at the KU Leuven have to be submitted electronically. The purpose of this electronic submission is to add all papers to a central repository and to the library system.

8.2.2 Procedure

All master's theses must be uploaded via KU Locket for archiving in submission to the library system (LIAS):

The workflow for submission of the Master's Thesis can be found on <http://wet.kuleuven.be/reglement/upload-masterthesis>

8.2.3 Embargo

Some master's theses' content is under embargo (for example in case of patents), this is decided by the coordinator of the master's thesis who is advised by the concerning supervisor. In the case of an embargo the rules applied at confidential PhD theses must be followed. When the coordinator has doubts or is too involved he can ask the chairman or secretary of the exam commission for advice.

Master's theses under embargo that are uploaded electronically can not be consulted in LIAS (Library System) before the period of the embargo has expired. After this they become visible, but only at the intranet of the KU Leuven.

9 Evaluation of the master's thesis

9.1 Faculty regulations

The supervisor will propose two readers from among the potential programme supervisors to the coordinator of the master's thesis no later than eight weeks before announcement of the results of the second examination period. At least one of these readers will belong to another research unit than the one in which the student prepared his Master's Thesis. In order to enable a profound assessment, the readers will interview the student on his work. The supervisor and the readers must be official members of the Master's Thesis assessment committee.

The student will publically defend his Master's Thesis during the examination period. The coordinator of the master's thesis will in good time set up an agenda for defending the Master's Thesis. The purpose of the agenda is to enable as many professors and researchers of KU Leuven and outside involved in the relevant research area as possible to attend the defence. The examiners who are present at the defence, including the readers of the Master's Thesis, will jointly give an examination note for each defence on a session that is presided over by the Chairman of the Board of Examination or his delegate. The names of these examiners will be stated in the report. The supervisor of the master's thesis collects all examination results.

Four notes will be given for the Master's Thesis, one from the supervisor, one from both the readers and one for the defence. The relative weight of these four notes is 10:3:3:4. The relative weight of the notes for the Master's Thesis for the Master's programme in Geography (interuniversity programme) is 8:4:4:4.

9.2 Addition

In order to pass for the master's thesis, the student must obtain at least 10/20 from each of the three evaluations: by the supervisor evaluation, the average of the results of the readers together (taking into account the rounding rules) and the defence evaluation. If for one or more of these components this is not the case, the maximum score will be at most 9/20.

9.3 Assessment committee

The assessment committee thus contains the **supervisor**, two **readers** and a **defence committee**, of which the supervisor and readers are also members (see 7.2). A good communication between the supervisor and the daily mentor(s) is essential to get a clear image of the process.

As a reader is selected from among the potential programme supervisors, external persons (for example a postdoctoral researcher from another university, a doctor that works in a company, ...) cannot be appointed as reader. However, there are plenty of other options to involve these external people in a master's thesis:

- As a mentor (although a mentor does not grade a thesis directly)
- As a co-supervisor: the supervisor remains responsible for the assessment
- As a guest lecturer: if the person is a possible supervisor for several master's theses

It is important that the supervisor informs the readers and other members of the assessment committee about the followed procedure. An option is also to give the readers a document with information on the process of the concerning student, this is for example done in the master of Geology.

The assessment of the defence is done by the defence committee. Involved persons that cannot be present at the defence evidently cannot take part in the assessment.

9.4 Aiming an objective and transparent evaluation

It is important that the evaluation of the master's thesis is done in an objective and transparent way. Therefore it is recommended that unambiguous criteria are used by every assessor. To achieve this a faculty **assessment roster** is developed in which criteria for the written report, the process and the oral defence are determined based on the objectives of the master's thesis. In this roster the examiners can indicate to which extent the student fulfils the criteria on a scale from insufficient to excellent. If a criterion is not applicable for the concerning thesis this can be indicated.

In the assessment roster a clear distinction is made between **process** and **product**. These aspects are assessed by the supervisor and the readers, respectively, as a reader cannot evaluate the process as well as the supervisor or mentor.

The assessment roster can facilitate the discussion between different members of the assessment committee and can be used to give structured feedback to the student. It is not an absolute measure but an **aid** for the examiner. Therefore no weights are coupled to the different criteria. However the final appreciation lies between the minimum and maximum appreciation for each rubric. Further explanation can be given in the global motivation.

The students are informed about the evaluation criteria at the start of the master's thesis and during the guidance the criteria can be used to give feedback. This is essential to stimulate the learning process of the student, especially since the master's thesis is an important part of the programme where the acquisition of essential competences are primary. After the final assessment the criteria can be used as a guide to give oral feedback to the students to give them the opportunity to learn.

Next to the assessment roster an **appreciation scale** was tested during academic year 2010-2011. This scale can help translate appreciations from the roster to a mark without using mathematical calculations. The final mark can then be given after a discussion within the assessment committee. After an evaluation of the appreciation scale during the summer of 2011 only minor changes seemed necessary. The appreciation scale is therefore considered a fulfilling instrument from 2011-2012 onwards.

The assessment roster and appreciation scale can be downloaded at <https://wet.kuleuven.be/onderwijs/mastersthesis/evaluation>.

Finally, it is important that a neutral person attends to the different **oral defences** to guard the norm consistency (the chairman of the defence committee). If it is impossible for one person to attend all the defences, several persons can attend different blocks of defences. Furthermore, the level of the **questions** at the defence need to be guarded by the chairman of the defence committee. General insight as well as detail knowledge needs to be tested. The members of the defence committee need to be informed correctly. We must bare in mind that the defence is an exam which awarded 6 credits out of 30 (20% of the master's thesis)!

9.5 Submission of marks

Until recently the final marks were written down by the examiners and were passed individually on to the faculty. This leads to confusion and missing marks. Therefore a new procedure is followed since 2009-2010:

- The coordinator of the master's thesis receives a list from the faculty on which all marks (also partial marks of the supervisor, readers and defence committee) can be filled in. He delivers this list to the chairman(men) of the defence committee(s).
- The marks are collected at the defence after the discussion by the chairman of the defence committee, who at his turn delivers them to the coordinator of the master's thesis.
- The completed assessment rosters of the lectors and supervisor are delivered to the chairman of the defence committee at the latest at the defence. The chairman delivers these forms to the coordinator of the master's thesis together with the marks. Optionally the lectors and supervisor keep a copy of their own roster in order to give feedback to the student.
- For partial marks as well as the final mark one decimal is allowed.
- The coordinator of the master's thesis is then responsible for the delivery of the filled in marks to the faculty. This is done according to the 50/15/15/20 system (Master in Geography: 40/20/20/20) and via the quotation form provided by the faculty administration.
- The faculty imports the marks into SAP.