Master’s programmes Earth Sciences

**MSc Research**

**GEO4-1520**

**Objectives**

The MSc Research represents the culmination of the Earth Sciences Master’s programmes. When conducting MSc research, the student demonstrates skills to pursue independent research and shows advanced knowledge in the field of the MSc programmes. These skills include:

- preparing and initiating a research project;
- analysing and processing data;
- writing and presenting a research report.

The student demonstrates the capability to apply and to integrate advanced knowledge in order to interpret scientific results and to answer research questions. The MSc research project includes a critical study of the relevant scientific literature, and application of the information collected to accomplish the research objectives.

The MSc research is mandatory for all Earth Sciences students and encompasses a credit load of a multiple of 7.5 EC between 30 EC (minimum requirement) and 45 EC (maximum). The duration should reflect the working time required for establishing the database for the project and is not associated with profundity. This implies that the same assessment criteria apply for MSc theses irrespective of duration. The MSc research encompasses a written report (MSc thesis) and an oral presentation, both obligatory in English. The thesis should – in principle – contain material of publishable quality. MSc Research projects can be carried out in collaboration with other students, but only under the condition that each student works on an individual problem statement and that the individual performance (and individual thesis) of each student can be properly judged by the supervisor.

**Pre-requisites**

The pre-requisites guarantee a competent starting level for the student on the aspects of research capabilities and general and specialist knowledge.

To start with MSc research a student should have obtained at least 30 ECTS credits of theoretical first year MSc courses (GEO4-...) from the relevant programme. Usually, the student has completed more theoretical courses within his/her personal programme, established earlier in consultation with the programme leader.
Finding a suitable MSc Research topic

There are different ways to find an MSc Research project. MSc Research projects offered by staff from the Department of Physical Geography are published on Blackboard and on the student website in February. Students can contact the staff member who offers the project for further information and application. For projects at the Department of Earth Sciences, students are encouraged to take the initiative in contacting academic staff members of the department about possible research topics. The topic should fit within or should have strong links with one of the Earth Sciences programmes. The topic could be theoretical or practical, could include fieldwork and/or lab-work and/or computer-based simulation/modelling. The Graduate School of Geosciences does not provide any financial compensation for the research components. Nevertheless, costs (e.g. fieldwork or laboratory analyses) may be reimbursed by the research group or external funds.

Together with the staff member, who is also the intended supervisor of the MSc project, the student defines and delineates the thesis topic.

Supervisors and reviewers

Typically, the member of the permanent scientific staff of the department of Earth Sciences or Physical Geography staff member with whom the student has defined the research topic will act as first supervisor and examiner/reviewer of the MSc Research project. The daily supervision can be delegated to a qualified expert from outside the departments. For example, when the MSc research project is performed at another academic or non-academic institution, a staff member at the host institution may act as daily supervisor. Nevertheless, the permanent staff member from the department of Earth Sciences or Physical Geography remains responsible as examiner, i.e. he/she is the primary responsible for the supervision and grading of the MSC research project (thesis and oral presentation). The daily supervisor then acts as secondary reviewer of the thesis and presentation. Postdocs and PhD-candidates may also be involved in the daily supervision and can act as second supervisors and reviewers.

If the project has only one supervisor, a second reviewer must be found in consultancy with the first supervisor. The second reviewer should be an expert in the field of the research topic.

If the second reviewer is not a permanent staff member of the department of Earth Sciences or Physical Geography, the qualifications of the intended second supervisor will be evaluated for their expertise by the Teaching Institute Earth Sciences during the registration procedure (see below). This may cause a sight delay in the approval of the MSc research project. If the Teaching institute does not give consent with regards to the second supervisor, both the student and first supervisor will be informed. They will then be asked to find an alternative second supervisor.

If the MSc Research project is graded with a final result of 8.5 or higher, a third reviewer will be necessary. Further details about the role and tasks of the third reviewer will be given below.
### Research activities and final products

An MSc Research project encompasses a variety of research activities that are necessary to achieve the research objectives, including literature review, data collection (for example through field observations, sampling, or measurements, laboratory experiments and analysis, or computer modelling), data analysis, thesis writing. The nature of the research activities within the project and the associated time investment are discussed and agreed upon with the first supervisor before the actual project starts. Writing an extended research proposal based on literature review may also be part of the research activities.

The final products of the MSc Research project include at least a written MSc thesis and an oral presentation. There are no strict rules with regards to the MSc thesis, except for that it must comply with the basic rules for scientific writing and scientific integrity. A guide for scientific writing is available at the Earth Sciences skills website (https://skillsearthsciences.sites.uu.nl/writing/). Furthermore, the assessment criteria can be found on the rubric/assessment form available in the Msc thesis Blackboard community.

The oral presentation (thesis talk or colloquium) about the MSc Research project has a typical duration of 20-30 minutes (45 minutes including questions and answers) and is scheduled near the end of the project in consultation with the supervisors and reviewers of the project and the secretary of the department of the Department of Earth Sciences or Physical Geography, who will make a room reservation and takes care of including the presentation in the thesis talk calendar (see Thesis talks Blackboard Community). A guide for scientific writing is available at the Earth Sciences skills website (https://skillsearthsciences.sites.uu.nl/presenting/).

Apart from the written thesis and oral presentation, the final products of the MSc Research product may include other relevant outcomes of the project, such as datasets, computer models (scripts or executables), whether or not included as appendices of the written thesis. If relevant, the delivery of these final products should be discussed and agreed upon between student and the supervisors.

### Administrative procedure

Apart from the different research activities and steps to achieve the objectives of the MSc Research project (e.g., literature review, fieldwork, labwork, data analysis, computer modelling, thesis writing), which will be discussed with and monitored by the supervisors, the MSc research project encompasses a series of administrative steps for registration and monitoring purposes as part of the quality assurance of the Earth Sciences master programmes. For this, the Osiris-Case digital platform is used.

To formally start an MSc research project, the student starts an Osiris case by taking the following steps:

- Log in to Osiris Student
- Click Cases
- Start a new case
- Click Thesis and graduation
- Click GEO MSc Thesis Earth Sciences programmes
The entire case encompasses the following phases from registration/application to final assessment:

- Registration of the project
- Submission of change request (optional)
- Submission of thesis for assessment/grading
- Grading of the thesis

The role, tasks, and responsibilities of the student, the first supervisor, and second reviewer in these phases will be further elucidated below.

**Registration of the MSc Research project**

If the student and supervisor agree upon the MSc research project, it needs to be registered and submitted for approval to the Teaching Institute, before the project is started. An MSc thesis project agreement form needs to be filled out, signed and submitted in Osiris Case. A template of the agreement form can be found at the end of this document.

- Log in to Osiris Student
- Got to GEO MSc Thesis Earth Sciences programmes
- Start a new case
- Read the instructions carefully

The agreement form contains the following information:

- **Personal data of the MSc student**
- **Title of the project**
  The title should reflect the topic of the study, which must be related to the Earth Sciences master programme.
- **Name of the first supervisor (examiner).** The first supervisor (examiner) must be a permanent staff member of the Department of Earth Sciences or Physical Geography.
- **Name of the second reviewer.** The second reviewer should be an expert in the field of the research topic.
- **ECTS credits**
  The study load of project can be 30, 37.5, or 45 ECTS credits
- **Project description**
  The project description briefly describes the aims and objectives of the project and the approach taken / methods applied to achieve these objectives.
- **Project schedule**
  The time planning must be consistent with the number of ECTS credits; 1 week (40 working hours) corresponds to 1.43 credits. The length of the project has to be planned in a way that public holidays are excluded in the calculation of the total number of working hours. The project schedule also includes dates of meetings with the supervisor(s) and should indicate when the supervisor is not accessible for longer time periods.
  Furthermore, milestones to evaluate the progress of the project, for example, accomplishment of the required data set, handing in of the first...
draft version and final version of the MSc thesis, and the grading of the project etc. are defined.

- **No-go criteria,**

  The no-go criteria define the minimum progress a student has to achieve within about 6 weeks after the start of the project. It is strongly recommended that the no-go criteria comprise a more extensive research project proposal including a literature review and detailed time planning. After about 6 weeks after the start of the project, a meeting with the supervisor is scheduled and the progress of the student is evaluated in view of the no-go criteria. If the student fails to meet these criteria, the supervisor can decide to discontinue the MSc Research project, implying that the student has to start a new MSc Research project.

Some of the above information also needs to be filled in on the Osiris Case webpage for administrative and archiving purposes.

If the project involves fieldwork, a signed Declaration regarding safety and behavior during excursions and fieldwork must also be uploaded. The form and the related safety regulations and guidelines can be obtained/downloaded from the Master Earth Sciences Thesis Blackboard community ([https://uu.blackboard.com/](https://uu.blackboard.com/)). Note that assessing the risks of the planned MSc fieldwork and discussing these risks with the student is the task of the supervisor and part of the safety procedure. Because of insurance purposes and to get a quick overview of the students abroad in emergency situations, it is required and obliged to register your stay abroad in the framework of your studies. This is achieved by following the next steps:

- Log in to Osiris Student
- Click the *Buitenland/Stay abroad* button on the Osiris homepage
  - A new tab opens in your browser; make sure pop ups are allowed
- In this new window, log in again for an overview of your Stay abroad application
- Click *Contact information*
- Add the address or addresses you will be staying during your study abroad period

After submission of the above application in Osiris Case, the Teaching Institute will check whether it is complete and correct, whether the first supervisor and second reviewer possess the required qualifications, and whether the number of EC credits corresponds to the time planning of the MSc Research project. If the application does not pass these criteria, the student and supervisor will be informed and receive information about the next steps to be taken to fulfil the requirements. If the application passes these criteria, the Teaching Institute will approve the project and the student and first supervisor will receive a confirmation message that the MSc Research project has been registered. Then the student can start the actual project.
**Submission of change request (optional)**

During the MSc project, it is expected that the student does all in his/her power to fulfill the commitments agreed on in the MSc agreement and to ensure the progress of the project as planned.

If a change in plans occur, the student must inform and discuss this with the first supervisor. This applies to the following situations:

- The MSc research project will be extended in size (number of EC credits)
- The end date of the MSc Research project will be postponed by more than four weeks due to personal circumstances.

If the first supervisor agrees, the student submits a change request in Osiris Case by taking the following steps:

- Log in to Osiris Student
- Got to GEO MSc Thesis Earth Sciences programmes
- Click the Submit a change request tab
- Read the instructions carefully

The change request must be justified and an updated version of the agreement form including an updated time planning, which has been signed by both the student and the first supervisor, must be uploaded. The student and first supervisor will be informed whether the change request has been approved by the Teaching Institute. Note that delayed completion of the MSc thesis without approval may lead to its rejection.

**Submission of first version for feedback**

When the student has finished the first version of the thesis, he/she submits the document to the first supervisor by email for feedback as agreed in the agreement form. Note that during this phase, communication between student and supervisor takes place via email and thus not via Osiris Case.

The first supervisor provides this first version with adequate, sufficient and constructive comments/feedback that helps the student to improve the quality of the thesis. Feedback may also be provided by the second reviewer instead of or in addition to the first supervisor’s review, if the second reviewer has been more intensely involved in the daily supervision of the project than the first supervisor.

**Submission of final version for assessment/grading**

The student implements these comments and prepares a revised, final version of the MSc thesis. After implementation of the comments, the student submits his/her final version of the thesis in Osiris Case for assessment. For this, log in to Osiris Student, go to GEO MSc Thesis Earth Sciences programmes, and click the appropriate tab to upload the thesis.

Since the uploaded version thesis will be graded, the student is urgently requested to double check whether the correct version is uploaded. The uploaded version will be automatically checked for plagiarism using Ouriginal. It is not
necessary to upload the additional outcomes such as datasets or computer
models in Osiris Case.

The supervisor and second reviewer will then assess and grade the thesis using
the standard MSc Thesis Rubric Earth Sciences (see the Master Earth Sciences
Thesis Blackboard Community for a pdf copy of this assessment form).

Assessment/grading of the MSc research project

The assessment of the MSC research project consists of three components: the
MSc thesis, the oral presentation, and the process. The assessment of the MSc
thesis counts 70% towards the final grade of the MSc Research project, whereas
the oral presentation counts 10% towards the final grade. The assessment of the
execution of the project (process) makes up the remaining part (20%) of the final
assessment of the MSc research project.

If the final grade is 8.5 or higher, or if the final grade is less than or equal to 6.0
and greater or equal than 5.5, a third reviewer is required, who supports this final
result. This third reviewer a) should be an expert in the field of research covered
by the thesis; b) should not have been involved in any way in the graduation
project and/or writing stage; c) may be a university lecturer from outside Utrecht
University. The third reviewer is expected to provide a short, written statement,
in which he/she declares that the written argumentation in the evaluation form
justifies the final result. The third reviewer also needs to sign the
rubric/assessment form. It is the task of the first supervisor to request for this
statement and to upload this statement in Osiris Case together with the thesis
assessment form with signatures from all reviewers.

After the thesis has been graded the first supervisor uploads the signed rubric
form in Osiris Case. The student will then receive a message that the thesis has
been graded and the result and rubric form can then be viewed in Osiris Case.
The first supervisor ensures that the assessment and submission of the final
grade and assessment form in Osiris Case takes place within 10 working days
after the submission date of the final thesis version, as agreed in the agreement
form.

If the final result is less than a 4.00 (before rounding), the student has failed for
the MSc Research project. The Osiris Case will be closed and the student should
start an entirely new MSc project for graduation. If the final result is insufficient
(but at least a 4.00), the student will get one additional opportunity to submit a
revised version as a supplementary test. The first supervisor/examiner
determines which revisions are needed and establishes the deadline for
submission of the additional revised version. The student uploads the revised
version of the MSc thesis only when the first supervisor agrees that it can be
submitted for grading. If the revised version is graded as sufficient, the final
grade of 6.0 for the MSc Research Project will be recorded in Osiris.

If the final result is 5.50 or higher, this will be registered as final grade in Osiris.
As soon as the final grades have been registered in Osiris, the case will be closed,
but the student will receive a follow-up invitation/request to upload the final
version of the thesis for archiving and possible publication. For this, a new case
will be started. When uploading the thesis, the student may choose whether and
when to make the MSc thesis publicly available. If this option is selected, the Utrecht University Library will take care of making the thesis publicly accessible. As a result, the thesis can eventually be found in search systems such as Google Scholar and WorldCat.
Template agree form

MSc Research project (GEO4-1520)

Name:

Student number:

E-mail:

Telephone (optional):

1st supervisor:

2nd supervisor / reviewer:

ECTS Credits:

Title:

Project description

Aims:

Approach/methods:

Schedule

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<tr>
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<tbody>
<tr>
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<td>Final version of report submitted</td>
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Go / no go criteria:

Signatures