

# HWM thesis and research practice rules

Hydrology and Environmental Hydraulics Group

[www.hwm.wur.nl](http://www.hwm.wur.nl)

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Table 1: Summary of thesis and internship specifications. Contact [hwm.office@wur.nl](mailto:hwm.office@wur.nl) for administrative issues.

	Internship	Thesis	Research practice
Code	HWM-70224	HWM-80436 or HWM-80424	HWM-79224
Credits	24–36 (typically 24*)	24–39 (typically 36*)	24
Duration	16–24 weeks (typically 16*)	12–26 weeks (typically 24*)	16 weeks
Coordinator	Rachèl Croonen	Kryss Waldschläger	Kryss Waldschläger
Supervisors	1 from HWM + 1 from internship provider	At least 1 from HWM	At least 1 from HWM
Topic	Linked to internship provider	Linked to HWM research	Linked to HWM research
Assessment	20% general professional comp. 30% domain-specific competences 40% scientific report 5% oral presentation 5% oral defence Pass/fail reflection report	40% performance 50% research report 5% oral presentation 5% oral defence	40% performance 50% research report 5% oral presentation 5% oral defence Pass/fail reflection report

\* depending on study programme




## 1 Introduction

The MSc programme Earth and Environment (MEE) includes a specialisation *Hydrology and Water Resources* and Climate Studies (MCL) includes the specialisation *The Physical Climate System*. Both specialisations include a compulsory thesis of 6 months (36 credits) and internship of 4 months (24 credits). In some cases, the internship can be replaced with a research practice (24 credits). The main difference between the thesis / research practice and internship is that for a thesis / research practice you ask and answer a research question at academic level, while for an internship you complete an assignment at academic level.

Since only a few students do a research practice, we only write “thesis” in this document. If something is different for the research practice compared to the thesis, we mention it explicitly.

The aim of this document is to clarify the rules and regulations and show some possibilities you have as a student to personalise your MSc programme. The most recent version of this document and other information can be found via [www.hwm.wur.nl](http://www.hwm.wur.nl) → education → MSc theses & internships and on the HWM MSc thesis Brightspace, where all thesis and internship related

information is collected.

In this document, you will see  when you (the student) have to do something,  when the supervisors have to do something and  when the examiner has to do something. You are in charge of the project, so you are responsible for checking if the supervisor/examiner actually completes these actions in time.

## 2 Thesis, research practice and internship

### 2.1 Thesis

The MSc thesis is the most important part of the study programme. You develop research skills and become an expert on a topic of your choice. By designing a project, collecting and analysing data, communicating your findings through a written thesis and colloquium (final presentation), and critical reflection on your own research, you complete a full research circle. This is your chance to show what you have learned at the university and you can use your thesis as proof of your accomplishments.

## 2.2 Research practice

Students with work experience on an academic level and students who did internships at a previous university (of applied sciences) are sometimes allowed to exchange the internship for a research practice. Ask your study advisor if you think this applies to you. The research practice is similar to a 24-credit thesis, but contains the self reflection and career orientation aspects from an internship.

## 2.3 Internship


The academic internship gives the student a unique opportunity to experience how it is to work at a consultancy firm, water board, government agency, research institute, or foreign university and will help to find a job after graduation. You will work on one (sometimes two or three) concrete assignment and become familiar with the background of the organization, the market and customers, research aims or public tasks and of course the employees of the internship provider. However, the internship is part of the curriculum, and therefore the academic level is important and the final report is an important outcome.

# 3 Choices

## 3.1 Planning

Most students use their last year for their thesis and internship, but theses and internships are relatively flexible. These “courses” don’t have to fit in the 6-period academic calendar and you can work during the holidays or go on vacation when the rest of the university is working (as long as you specify it in your learning agreement – see Sec. 4.6). Do realize that supervisors may not be available the whole summer and that there is a summer break for final presentations (See Sec. 4.17).

Plan your thesis well in advance, especially when you depend on people from outside the university (abroad or internship provider).

 As soon as you are seriously thinking about doing a thesis at HWM (usually 6–2 months in advance), send an email to [hwm.office@wur.nl](mailto:hwm.office@wur.nl) spec-

ifying when you expect to start. The secretary will add you to the MSc thesis Brightspace and the DES-HWM-STUDENTS mailing list, so you receive all relevant information in time. When you have more details about your project, you can start the administrative process in OSIRIS (Sec. 4.5). If you decided not to do a thesis at HWM after all, please inform the secretary at <https://wur.eu/tir-start>.

## 3.2 Thesis or internship first?

You can choose in which order you want to do your thesis and internship. A reason for doing an internship last could be that you hope to find a job there after graduating. A reason for doing a thesis last could be that it is the most important part of your curriculum and you want to be as well prepared for this final assessment as possible.

## 3.3 Courses

Following courses at the university is very cheap compared to following courses after you graduate (3000 euros for a week is no exception). Therefore, you may want to use the opportunity while you are still a student and follow additional courses to strengthen your profile.

You can follow courses during your thesis project (apart from a few compulsory courses, which you should have passed before starting your thesis – Sec. 4.1). For example, you can follow Hydrogeology in the morning of period 1 and work on your thesis only in the afternoons, or you can do your MOS modules part-time when you’ve already started on your thesis project.

If you want to follow extra courses, but don’t want to delay your graduation, you can choose to work on your thesis in the summer months (be aware of the limited availability of supervisors).

## 3.4 Deciding what you want

Before you start looking for specific topics, you should think about what you want to learn during your thesis. In every thesis project you will improve your research skills and skills in project

management, reading, writing and presenting, but there are differences in focus between projects.

- Do you want to focus on improving data processing, modelling, field or lab skills?
- Do you want to dive into the scientific literature or do you want a project with a direct link to practical application?
- Do you want to specialize and do your thesis and internship on a similar topic or do you want to widen your horizon and choose very different topics?
- Do you want experience abroad?

### 3.5 Finding a topic

The thesis topic must fit within the specialisation of HWM and have a close relation with the MSc courses of HWM. For MCL students, the topic should also fit within the theme of that programme, so you should be able to explain how your thesis topic relates to Climate Studies. Theses can only be done individually. Sometimes, parts of the thesis project (e.g. field work) can be combined with the thesis work of another student. There are several ways to find a suitable topic.

- Look at the announcements of theses on [wur.jobteaser.com](http://wur.jobteaser.com) (this list is not exhaustive, but gives some idea of the possibilities).
- Talk to staff members when you follow their courses.
- Talk to current thesis students.
- Visit the annual thesis market in March where HWM staff will present current topics.
- Find out what research HWM staff members are involved in. Just typing their names in Google Scholar already gives a good overview.
- Look at the thesis reports on the MSc thesis Brightspace (ask the secretary [hwm.office@wur.nl](mailto:hwm.office@wur.nl) if you don't have access).
- Attend other students' thesis presentations to get an idea of what they did (ask [hwm.office@wur.nl](mailto:hwm.office@wur.nl) if you want to receive invitations).
- Look in the Pyrus news letter.

- Talk to the thesis coordinator Kryss Waldschläger. She can give an overview of possibilities and direct you to other staff members. Please don't make appointments with more than two staff members yourself (unprepared "shopping" is time consuming).

All students are supposed to schedule a meeting with the thesis coordinator (Kryss Waldschläger) at an early stage to discuss possibilities and be informed about the latest developments. If you want to go abroad for your thesis, please contact her at least 6 months in advance.

### 3.6 Minor thesis

Second (minor) theses could be a nice addition to your programme, if you don't mind delaying your graduation with a few months. Minor theses are especially useful when you want to specialize in several topics or when you want to achieve different learning objectives (e.g. both field work experience abroad and extensive data analysis).

### 3.7 Going abroad

Because it is such an important part of your study programme, it is very important that the academic level of theses is guaranteed. There are several possibilities for doing (part of) a thesis abroad.

- You are supervised by an HWM staff member, start and finish your thesis at HWM, but go abroad for a few months in between for instance for field work, often related to ongoing research projects.
- You are supervised by an HWM staff member and a researcher from a university abroad with whom the staff member has close contact and can guarantee appropriate supervision and facilities during your stay abroad.

MSc theses should always be connected to current HWM research projects. Staff members decide if a topic meets this requirement. It is your responsibility to make sure that you make the best use of the scientific expertise available among the staff members of the chair group HWM.

### 3.8 FAQ

- *Is it possible to involve another chair group?*  
Yes. This happens quite often. You need supervisors from both groups. In the learning agreement, you should specify the percentages of contribution from the groups.
- *Is it possible to extend the thesis?*  
Yes (see Sec. 4.1). Ask your study advisor for advice and approval.
- *Can I do my thesis at an institute, government agency or company?*  
Yes, in exceptional cases, but only if we have very good contact with your supervisors, such that the academic level of your thesis is guaranteed.

## 4 Rules and regulations

There are quite some rules for theses. Some are set by the university and exam committee, others by HWM. This section gives an overview of the HWM rules.

### 4.1 Requirements


Before you are allowed to start your thesis, a significant part of the MSc courses should be completed, including passing several courses. You should have passed two courses in the following set:

- Catchment and Climate Hydrology (HWM-40306)
- River Flow and Morphology (HWM-30306)
- Advanced Hydrological Systems Analysis (SLM-33306)
- Water and Air Flow Numerical Techniques (HWM-33806)
- Coastal Oceanography and Delta Geology (HWM-33306)
- Urban Hydrometeorology (MAQ-35306)
- Advanced Hydrogeology (HWM-50806)
- Hydrogeology (HWM-20806)
- Geophysical Fluid Mechanics (HWM-23806)

and at least one of these courses should be in the set:

- Catchment and Climate Hydrology (HWM-40306),
- River Flow and Morphology (HWM-30306)
- Advanced Hydrogeology (HWM-50806)
- Advanced Hydrological Systems Analysis (SLM-33306).


A less extensive study programme may result in a restricted choice of topics. For example, if you haven't followed *River Flow and Morphology*, you are allowed to do a thesis at HWM, but discouraged to choose a topic which requires knowledge from that course.

Your study advisor (MEE: Kim Janssen, Monica Gorska or Femke Hilhorst, MCL: Saskia van Bakel, Annemarie Hage or Marlies Gräwe) has to approve that you are allowed to start.  Email her and send the response to your supervisors.

### 4.2 Size

The standard number of credits is 36 credits (24 weeks) for a thesis and 24 credits (16 weeks) for a research practice. If you want to extend the duration of your thesis (max. 39 credits = 26 weeks), you must consult your study advisor first. Thesis topics with a size of 18 – 33 credits can be used as minor thesis (ask study advisor and exam committee for approval).

### 4.3 Supervision roles


The thesis coordinator (Kryss Waldschläger) can give you information on possible topics and supervisors.  Schedule an intake meeting with the thesis coordinator before you decide on a topic. Based on your wishes and ideas, Kryss will then direct you to two or three permanent staff members to discuss possible thesis topics. Once you have picked a topic, please inform Kryss about it.

There are two secretaries (Tamara Schalkx and Rachèl Croonen) who can be contacted through [hwm.office@wur.nl](mailto:hwm.office@wur.nl) for administrative issues. Rachèl mostly handles student-related issues (but please email to [hwm.office@wur.nl](mailto:hwm.office@wur.nl), so Tamara can step in when needed).

HWM thesis students have at least one university supervisor, which should be an HWM perma-

ment staff member\*. A second supervisor can be added to the supervision team. The second supervisor can be another permanent staff member, an HWM temporary staff member (PhD researcher or postdoc) or an external supervisor (from another chair group or institution).

Thesis students are officially entitled to two hours of supervision per week during 24 weeks (combined effort of all supervisors, including reading texts and preparing data).

For theses you also need an examiner. The examiner is not involved in the project, but checks the level of the products (proposal and report) and is present at the examination and final assessment (Sec. 4.18). The examiner should be a permanent staff member.  Fix the examiner at the start of the project.

Note that just like between students, there are differences between supervisors in their way of working. Some supervisors prefer to have weekly meetings, while others prefer a more loose contact. Some supervisors prefer to read the whole draft report at once, while others prefer to read it in parts (so they can comment directly and students can apply the new knowledge directly when writing the next chapters). Discuss what you can expect from each other during the first meeting and write it down in the learning agreement, so you won't be surprised or disappointed.

#### 4.4 Workplace


HWM wants to provide work space for thesis students, but currently the Lumen and Gaia buildings are being remodeled and the space for students is limited. There is some space for thesis students in room E.101 in Lumen (officially for PhD researchers), but definitely not for everyone. Unfortunately, we have to ask most of you to find a workplace somewhere else. Some students go to the library, some find a place in the ground floor in Gaia and some book rooms in Forum or Orion to-

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\*Permanent staff members at HWM are Victor Bense, Claudia Brauer, Roel Dijkma, Tim van Emmerik, Svenja Fischer, Ton Hoitink, Lieke Melsen, Dragan Milosevic, Syed Mustafa, Martine van der Ploeg, Silke Tas, Ryan Teuling, Kryss Waldschläger and Albrecht Weerts

gether. Hopefully some more spaces will become available in Lumen or Gaia during the course of the year. If you have problems finding a suitable workplace, please inform Roel Dijkma. He is the HWM contact for housing issues and can communicate that to the people managing the ESG housing process. Roel will inform you all about the developments via the DES-HWM-STUDENTS email group.

#### 4.5 Start OSIRIS

 After an HWM staff member agrees to supervise you, start the administrative process in OSIRIS through this link: [wur.eu/tir-start](http://wur.eu/tir-start). The student and supervisor have to follow steps in a specific order. Check the visual guide on Brightspace under 'Sheets and links' to get an idea of the process. Make sure to enter an HWM staff member as your first supervisor. In OSIRIS that is called the 'main and administrative supervisor'. This thesis regulations document provides information on what to fill in at which stage.

#### 4.6 Learning agreement

 You fill in the learning agreement in OSIRIS. Discuss some key points (e.g. planning, division of tasks) first with your supervisors. Most points are straightforward, but some require more attention; below are notes for filling in the agreement in OSIRIS:

- **Admission:** If you passed the exam for Catchment and Climate Hydrology but still need to take the exam belonging to the Iceland excursion, you can write "Meeting the requirements conditionally to passing the exam belonging to the excursion of Catchment and Climate Hydrology in August."
- **Supervisor(s):** The first supervisor should be an HWM staff member. In OSIRIS that is called the 'main and administrative supervisor'. If the daily supervision in your project is actually carried out by a postdoc or PhD researcher, put that person as the second supervisor in OSIRIS. Explain how the supervision tasks are divided in the text box under

“Arrangements regarding supervision”.

- **Planning:** Expected date of progress evaluation is about 4–5 weeks after the start of the project. Expected date of completion is 24 weeks after the start of the project. If you plan to spend longer, add the weeks to the dates above and mention why (following courses, vacation, working as a student assistant, etc.) in the text box under “Arrangements for individual situations”. The draft report does not have to be uploaded to OSIRIS.
- **Brief project description:** This can be very short. A preliminary title and a few sentences will suffice.
- **Arrangements regarding supervision:** Discuss this with your supervisors. Example: “Weekly meetings at start and end of the project and two-weekly meetings in between. Quick questions can be asked via email.” Also discuss how much feedback you will get on the draft proposal and thesis. Examples: “Supervisors give feedback on draft of the entire proposal/report.” or “Supervisors give feedback on separate chapters.”
- **Arrangements regarding progress evaluation:** Type: “After the supervisors have approved the proposal, I send the proposal to the examiner. The examiner reads the proposal, attends the proposal presentation and fills in the HWM thesis progress evaluation form as advice for the supervisors. The first supervisor uploads this form to OSIRIS and registers the go/no-go decision in OSIRIS.”
- **Arrangements regarding facilities:** If applicable, mention if you need to use for example the Laboratory for Water and Sediment Dynamics (check with Nick Wallerstein, the lab manager, first) or high computing facilities.
- **Arrangements regarding report:** MSc theses should be in English and public. Mention it here if that is not possible for your project. For the data management plan, you can for example type “During the project, data will be stored on my personal OneDrive, which is backed up automatically. After the project, the data and scripts will be sent to the super-

visors, who will store it on the chair group’s W drive.”

- **Facilities / arrangements for individual situations:** If you spend part of your time at another university or institute, mention that here. Also mention (mental or physical) health issues which may be relevant.

**S** After submitting, the supervisor gets a message from OSIRIS to check and approve the learning agreement. In some cases, the supervisor needs you to change something and you have to submit it for approval again. The examiner does not get any information from OSIRIS at this stage, so please inform the examiner of the important parts yourself. **Y** Send the examiner an email (put your supervisors in the CC) with: start date, date of the progress evaluation, expected end date, the brief project description and any personal circumstances that are important to mention.

The learning agreement is important for you. After your supervisor approved it in OSIRIS, they have committed to your project and promised to guide you through it, and in turn you have promised to work on this project and finish within a certain period (see Sec. 4.13 on what to do in case of delay). The approved agreement gives you proof of the intended project and planning, which you can use in case of conflicts.

In the agreement, you already set the date of your proposal presentation (Sec. 4.9) and an intended end date of the project. The exact date of the final presentation is set after a positive progress evaluation (Sec. 4.10). We have fixed dates for our presentations; check our [HWM theses and internships](#) sheet for available slots and more information. **Y** Check the proposal presentation date first with your supervisors and examiner and then with the secretary (send email to [hwm.office@wur.nl](mailto:hwm.office@wur.nl)) and ask her to send the meeting request for the proposal presentation.


## 4.7 Thesis ring

All thesis students should participate in the HWM thesis ring. There are two groups; the secretary will assign you to one of them. The thesis ring

meets each Wednesday at 14.00, as a hybrid meeting (please attend in person if possible). During the meeting, students provide feedback on each other's documents and share and discuss thesis-related issues. Each meeting is moderated by an HWM staff member, postdoc or PhD researcher. More information about the thesis ring can be found on Brightspace.

## 4.8 Proposal

The thesis work starts with writing a research proposal. Important aspects of this proposal are the motivation, research objective, research question, methods and time schedule. You can use the LaTeX thesis proposal template, which includes the main chapters (see *HWM thesis and internship tips* on Brightspace), but you are not obliged to use it. The proposal should not exceed 4 pages (excluding time table and references).

The proposal should be iterated with the supervisors towards a final draft and sent to the examiner at least two days before the presentation (Sec. 4.9). After the proposal presentation, you may have to adjust the final draft using feedback from the discussion and comments from the examiner (see Sec. 4.10).  Send this final draft proposal to your supervisors and the examiner.

Whenever you plan to do experiments in the Water and Sediment Lab, it is important to involve the lab manager Nick Wallerstein ([nick.wallerstein@wur.nl](mailto:nick.wallerstein@wur.nl)) as early as possible. He can help you making a realistic plan and keeps an overview of all the activities in the lab. He can provide you with useful insights about what is and what is not possible in the lab. During the course of your thesis, any communication with Nick must involve your supervisors, especially when important decisions regarding your experiments are made.

For fieldwork equipment, contact Victor Bense ([victor.bense@wur.nl](mailto:victor.bense@wur.nl)) at an early stage to check the availability of field equipment.

## 4.9 Proposal presentation


Every thesis student will give a short lunch presentation after about 4–5 weeks (3 weeks in case of re-

search practice or minor thesis), but no more than 8 weeks (this is doubled if you work on the thesis part-time). Proposal presentations are 7 minutes presentation and 8 minutes discussion. The presentations are in English. Both the supervisors and examiner need to be present. Students are expected to attend as many presentations by other students as possible and contribute actively by asking questions.

The presentations are scheduled as hybrid meetings. You will receive instructions from the secretary before your presentation. If it is impossible for you to be on campus, please inform the secretary so the meeting can be altered to 'online only'. If there are other presentations before and/or after yours, please be there the entire session, and connect and check everything before the first presentation starts.

The objective of this presentation is to show fellow students and staff what you are working on, which is both fun (it's nice to know what other students are doing) and useful. You may get relevant feedback from people who are not involved in your project, which you can use during your project, or you can learn that other people are working on a similar topic and team up. In addition, preparing for the presentation helps you to get your research objective and plan very clear (7 minutes is not much). After the presentation, the audience should understand why your project is so important, what your objectives are and how you are going to achieve your goals (and answer your research questions).

## 4.10 Progress evaluation

After about 4–5 (thesis) or 3 (research practice) weeks, but no more than 8 weeks (full-time equivalent), a progress evaluation takes place. The supervisors and examiner decide whether the project has enough potential, resulting in the decision "continue" (go), adjust or "terminate" (no go). This decision is based on the final thesis proposal and thesis proposal presentation (so no other meeting with the examiner is required).  The examiner fills in a short progress evaluation form (an Excel form available on the MSc thesis Brightspace)



after the proposal presentation and sends that to student and supervisors. **Y** Improve your proposal if necessary, send the final version to supervisor and examiner, and upload to Brightspace and OSIRIS. **S** The first supervisor uploads the progress evaluation form in OSIRIS and clicks 'go' or 'no-go'.

#### 4.11 Planning the final presentation and examination

**Y** Set the exact date of the final presentation after a positive progress evaluation. We have fixed dates for our presentations; check our [HWM theses and internships](#) sheet for available timeslots and more information. First check with your supervisors and examiner which date suits best. The supervisors and examiner have to be present. Then check the date of the final presentation with the secretary (send email to [hwm.office@wur.nl](mailto:hwm.office@wur.nl)) and ask her to send the meeting request for the final presentation.

**Y** You send the invitation for the 45-minute examination meeting yourself to the supervisors and examiner (this can be done in Outlook, as regular meeting or online/hybrid Teams meeting). It should be scheduled after the final presentation, on the same day or shortly after.

**S** The first supervisor assigns the assessors and examiner in OSIRIS: him-/herself as the first OSIRIS-assessor and the examiner as both the second OSIRIS-assessor and OSIRIS-examiner.

#### 4.12 Presentation attendance

At the university many presentations take place as part of MSc theses, internships or scientific symposia. Attending presentations helps you to prepare for your own presentations, to get ideas for your thesis research and to put the thesis research at HWM into a broader scientific and societal context. In addition, it is a matter of courtesy to listen to your colleagues present what they have been working on for months.

Therefore, we expect you to attend as many presentations as possible, but at least 20% of the scheduled presentations. Feel free to take notes

and partake in the discussion. Do not be afraid to ask questions after the presentation — we value your contribution and will not use “bad questions” against you when assessing your own thesis.

#### 4.13 Delay

In the learning agreement you set the date of completion. If you need an extension, you must write an email (no later than 4 weeks before the original expected end date) to the supervisors and examiner, indicating the reason for the delay and an adapted planning. Explain what you will do in order to meet the new deadline, for example reduce the size of the project, change the way you work or communicate differently with supervisors.

#### 4.14 Report

At the end of the project you hand in a report. The report is a final version and will be evaluated by the supervisors and examiner. The report has the structure of a research report and should be in English. The report should have fewer than 40 pages (excl. appendices, min. font size of 10) and the maximum size is 10 MB (for the pdf), to allow easy storage and distribution. See the additional document *HWM thesis and internship tips* for tips on report set-up, text, figures and technicalities. We recommend LaTeX as an efficient text editor, but you are not obliged to use it.

Your report should be finished one week before the final presentation, unless agreed otherwise with both the supervisors and examiner. **Y** Send the final version to your supervisors and examiner and upload it to both OSIRIS and Brightspace (Assessment > Assignment).

All reports are uploaded to the HWM Brightspace page. If the report is confidential, specify it in the learning agreement and e-mail the secretary and it will not be uploaded to Brightspace. Also, when uploading your final report to OSIRIS, you can indicate whether or not publication in the WUR Library is allowed.

If your thesis report is very good, you may think of trying to publish it in a scientific journal. If you discuss this with your supervisors in an early stage,

you can write your thesis report in the form of a scientific paper.

#### 4.15 Generative AI

The use of generative artificial intelligence (e.g., ChatGPT, BARD, DALL-E, Elicit) to create ready-made content in assignments is considered fraud. So, it is not allowed to copy-and-paste the output of AI. However, you are allowed to use AI as a sparring partner, and as a feedback tool for the quality of your text (e.g., as a spell checker or grammar checker). However, the use of AI is always subject to the following rules:


- Acquiring active writing, designing and reflection skills is an important part of your thesis. The use of AI should only be in support of, not as a replacement for these skills.
- You will always be held accountable for the correctness, completeness, and coherence of all your texts. The correctness of the output of AI is never guaranteed. AI chatbots have been known to confidently assert false claims as true. You should always critically evaluate the output.
- When you use AI for your work, acknowledge your use and report how it affects your products.

Your thesis should contain an appendix on the use of AI. In this appendix, you state whether you used AI for writing your report, and if so, how. In case you did not use AI, this appendix can be one sentence in which you state that you did not use AI. In all other cases you have acknowledge your use and report how it affects your thesis writing.

#### 4.16 Self-reflection note (research practice only)

In addition to the report, you write a “self-reflection note” (max. 2 pages), in which you evaluate your performance and write about the future. The personal reflection report should describe your personal development during the research practice and your goals for further development. Questions on the learning outcomes you have to answer are for example:

- What were the most important learning outcomes?
- What activities did you perform to attain these learning outcomes?
- How do you evaluate your performance on these activities?
- What are your feelings on your performance on these activities?
- Could you have done things in another way? And, if so, how?
- What did you experience as your strong and weak points in this working environment?
- How can you improve your weak points?
- What gaps do you identify in your knowledge and skills in your professional development?
- What was the contribution of results to the goals of the organization/the larger project the research practice was a part of?
- Based on your experience gained during this research practice, which working environment (consultancy, government, academia) is most suitable for you and why?
- What are your plans for the near future?

 Send the self-reflection note at least one week before the final presentation to the supervisors and examiner. The reflection note is graded as pass/fail. If you don't take it seriously, you will fail the whole research practice. The reflection note is not shared outside the supervision team since it contains personal experiences and perspectives.

#### 4.17 Final presentation

MSc thesis presentations are 12 minutes followed by 8 minutes discussion, both in English. You can update the title up to four weeks before the presentation by emailing [hwm.office@wur.nl](mailto:hwm.office@wur.nl). The secretary will then send a first invitation (as Teams meeting) to the HWM staff and HWM students. At least one week before the presentation, send an abstract (which has been approved by the supervisors) to the secretary. She will update the invitation.

The presentations are scheduled as hybrid meetings. You will receive instructions from the secretary before your presentation. If it is impos-

sible for you to be on campus, please inform the secretary so the meeting can be altered to 'on-line only'. If there are other presentations before and/or after yours, please be there the entire session, and connect and check everything before the first presentation starts.

You can forward the Teams link to other people you want to invite. You are welcome to invite friends and family to your presentation (it's one of the few opportunities to show them what you've been doing), but target the level of your presentation to fellow students and HWM staff members that were not involved in your project. The first questions from the audience are reserved for fellow MSc students. The presenting student should invite at least 5 students specifically to his/her presentation to ensure a large enough audience.

#### 4.18 Examination and assessment

The final presentation is followed by a meeting of 45 minutes with supervisors and examiner (send an Outlook meeting request yourself well in advance).

**S E** Before the meeting, the supervisor(s) and examiner complete the red cells in their respective column in the assessment form in Excel (see "Assessment form MSc thesis HWM.xls" on Brightspace) independently, using the official rubrics (included in the assessment form). If applicable, the first supervisor compares the grades of the first and second supervisor and makes a consensus version (averaged or otherwise). Both supervisors and the examiner add feedback (blue column). The first supervisor enters the combined grades from first supervisor and second supervisor (yellow column) in OSIRIS, and the examiner enters their grades (red column) – this can be done either before or after the meeting.

The first part of the meeting (15 min) is an examination. This discussion has the set-up of an oral exam, in which you should prove to the supervisors and the examiner that you understand what you did, what the effect is of your choices, what the contribution of your research is to science and practice and how your research fits in a broader context. This exam determines part of the final grade (see Table 1).

**S E** After the discussion, you leave the room. The university supervisor and examiner compare and discuss their partial grades, assess the examination and make a final consensus version.

Finally, you are invited back into the room and informed about the assessment. The average of all four categories should be 5.5 or higher. When the grade for the MSc thesis is very high (9 or higher), the report needs to be graded by a second examiner (another HWM staff member). In exceptional cases, you can be asked to improve the report based on the presentation and discussion. The supervisor then checks whether the changes have been made.

**E** The examiner completes the assessment form in OSIRIS and sends you a pdf of the completed Excel form with the final grades and all feedback by email as well.

#### 4.19 Data

At the end of your MSc thesis, you are required to send your data and scripts to ensure reproducibility (formal university data management requirements) and so it can be used in future (thesis) projects, of course with the appropriate references. **Y** Send the main supervisor all thesis material:

- Data – not only the most basic data files (e.g. the raw data downloaded from a website), but also intermediate datasets you obtained after filtering or selecting or running a model
- Scripts
- Figures
- Report in pdf and tex (including figures) or doc
- Presentation in tex/ppt and pdf
- Readme files to help potential users understand your logic (see *HWM thesis and internship tips*).

**S** The supervisor stores the data and scripts on the chair group's W drive.

## 4.20 Completion

- The following should have been uploaded/finalized in OSIRIS:
  - learning agreement
  - proposal
  - progress evaluation
  - report
  - reflection report (research practice only)
  - assessment supervisor
  - assessment examiner
- You should have uploaded to Brightspace:
  - proposal
  - report (max. 10 MB)
- You should have sent to your supervisor:
  - data and other material