UNIVERSITY OF AMSTERDAM
Informatics Institute

Master Information Studies Student Manual

Academic year 2022-2023
MSc IS thesis team

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The Master Thesis Information Studies is a mandatory part of the master programme, in which you design and conduct practical research at the university or at an external organisation. In the Master Information Studies the terms dissertation, thesis, scriptie (Dutch) are used synonymously.

Important information:

1. Thesis submission deadline

Fulltime students will have the following deadlines and end date for their thesis project in 2022-2023

Timeline Fulltime:

- Thesis introduction + preparatory work– November until Christmas
    - Go to your thesis project page (DataNose – Projects) and fill out the thesis form before 10th of January
- Thesis design + Exploratory Data Analysis (DS) / Literature Review (IS) – 1st of January – 31st of March
    - The thesis design needs to be finished before 19th of February and is one of the 5 mandatory milestones. Please see step 3.
- Thesis writing – 1st of April – 30th of June

End date: 30/06/23 at 23:59h (this is a hard deadline!)

Parttime students will have the following deadlines and end date for their thesis project in 2022-2023.

Timeline Parttime

- Thesis introduction + preparatory work + thesis design – October until Christmas
    - It is recommended to finish the thesis design at the end of December to be able to finish the thesis writing on time.
    - Go to your thesis project page (DataNose – Projects) and fill out the thesis form
    - The thesis design is part of 5 mandatory milestone reports. Please see step 3.
- Exploratory Data Analysis (DS) / Literature Review (IS) + Thesis writing – 1st of January – 30th of June

End date: 30/06/22 at 23:59h (this is a hard deadline!)

Mid-term evaluation - May 18th

The midterm evaluation is May 18th . This is when the supervisor should decide whether the work performed so far is good enough to proceed. Termination of the thesis at this point means that you have to start again from scratch in September. If nothing is mentioned by the supervisor, it is assumed that all is fine and you can proceed.

3. Writing your thesis

The master thesis has to be written in English and should conform to the two-column ACM format (acm.org/publications/proceedings) amongst other things. It is recommended to use the Overleaf template (https://canvas.uva.nl/courses/6056/files/7205581?wrap=1 OR tiny.cc/overleaf) Please go to **step 4** for more information

4. Contacting the Board of Examiners

If you want to deviate from one of the study plans that are already approved you can ask for permission with the Board of Examiners. Please follow the link to see for which issues you can address them and how to do this.

Below you will first find general information on what we expect from you. The step by step guideline will introduce you to the Master thesis process. Read this information carefully!

The programme will keep working on improving the process therefor it might happen that small changes occur.

If you have any questions please contact the thesis coordinator or programme coordinator through Canvas

Thesis objectives

The focus of the thesis research will be the scientific study of a problem oriented towards actual research themes in academia and society. The thesis project provides students with first-hand experience in working with established scientists or industry experts during a prolonged period of time. The research project's objective is to give the student an opportunity to acquire practical experience of quantitative and qualitative scientific research methods and to learn to work independently. In addition, the student has the opportunity to discover gaps in his knowledge or skills and fill these.

The learning objectives of the research project comprise, that after completion of the thesis project, the student:

- is able to formulate a clear research question in the field of information studies and design a plan to answer that question
- can show state-of-the-art knowledge in the area of the research project based on the relevant literature by applying in a practical situation
- is able to process the research data and to critically judge the obtained results in relation to the goals and the line of research of which the research project is part
- is able to describe and critically discuss the above activities in a written report, in which the methodology is accounted for and the original phrasing is substantiated
- is able to present and discuss the results to a scientific and non-scientific audience
- is able to function in a professional environment

A master thesis is defined as 'an individually written record of the student's performed original research or design of a scientific nature'. It is an original, independent piece of work especially composed for this occasion containing the creative ideas of the student. Claims, hypotheses, policy recommendations and design choices need to be supported with arguments based on existing theory or empirical evidence.

The master thesis cannot consist of copied resources (internet, books, and journals), unless properly quoted. The material should not already been submitted elsewhere (other courses, study programmes, universities) with the aim to receive study credits for this. The master thesis can however, elaborate on previously submitted work, as long as it is clear which contribution of the student has been submitted for which study programme component.

Justification

It is important to deliver your research as a product. The thesis should not contain the process of your research. You justify what you have done on the merits. You want to argue that your approach is a fruitful way of answering your research question while contextualizing it in previous research. Do not make a shortcoming into an excuse. Make it into a strategy for future research.

Thesis topic

The project will either be carried out in an Information Studies setting, such as trade, industry, governmental or non-profit organizations, or you can choose to join one of the research groups within the university (ivi.uva.nl/research/research-groups-landing.html) on an IS related topic. In cases where the topic is beyond the field of Information Studies or if students wish to perform a joined project, the Board of Examiners will have to approve the proposed project before the start of the thesis trajectory. Also, students may carry out the research project at an equivalent organization abroad.

Because of the interdisciplinary character of the Information Studies programme, the type of master theses varies. A typical Data Science thesis requires hand-labelled data, sufficient complexity going beyond simple approaches such as linear regression and a proper evaluation setup (cross-validation, using more than 1 dataset, train/test, et cetera). For an Information Systems thesis, it is required to have a proper validation for a quantitative or qualitative study. When interviews are used to get a requirement set, the set must be validated and this will normally be done by means of a design (interface, small algorithmic test, outline of a test framework, et cetera). See also: https://canvas.uva.nl/courses/6056/modules/items/1443583

The most common research formats are:

- Empirical research, as used in social and economic science.
- Analysis of existing theories regarding an Information Science issue.
- Design/Prototype of a complex information, knowledge or media system, or a new design approach or new algorithm for such a system.
- Evaluation of a complex information, knowledge or media system
- Report with policy recommendations regarding a complex organizational issue, where the recommendations are explicitly based on theories of the information science domain.
- Experimental evaluation and/or specialization of a design approach or algorithm for a specific application domain

Examples of topic clusters

Thesis topics can commonly be clustered according to track. Below, you find a non-exhaustive list of examples of those topic clusters.

For Data Science:

- Medical,
- Forecasting,
- Natural Language Processing (NLP),
- Deep Learning,
- Timeseries,
- Financial,
- Image Classification,
- Clustering,

- Information Retrieval.

For Information Systems:

- Interviews,
- UX research,
- Human Computer Interaction,
- Knowledge Management,
- Semiotics.

It is necessary to do an Exploratory Data Analysis (EDA) for a data science thesis or if quantitative data is used as the starting point for the thesis project.

Step 0: Obtaining formal permission from the Examinations Board

Step 0.1: Registration

You need to register for the Master Thesis course. The registration for this course follows the same procedure for other courses which you can find under "course registration"

Step 0.2 Permission and Personal Study Plan

You may start with the Master Thesis if your personal study plan has been approved by the Examinations Board. Please fill in your personal study plan in SPA (unless you already have an (old) PEP form approved by the Examinations Board) to ask the Examinations Board for approval of your personal curriculum.

https://acadplan.datanose.nl/

In order to graduate your personal study plan needs to be approved by the Examinations Board. If you have doubts or questions regarding your programme, you can make an appointment with your Study Adviser.

Step 1: Choose an MSc IS project / Thesis Fair

Internal Projects

Many of the research groups who are part of the Informatics Institute have projects available for you to join and write your master thesis at. These projects can be found on the DataNose Marketplace and will occasionally be posted on the Canvas page.

One of the advantages that come with choosing an internal project is that is comes with a UvA supervisor and this is beside the fact that the data is most certainly available and usable.

Internship/ External Projects

Most students do a thesis at an internship. The university requires you to answer a research question that has scientific relevance. It is not acceptable just to deliver a practical solution for the organization/company involved. Make sure you get the expectations clear on all sides. If you are doing an external project, you will have to find a UvA supervisor for supervision. In case you cannot find a UvA supervisor, an external project cannot be used as a thesis project. It is acceptable, sometimes even preferable, to do a university project instead of an internship.

Proposing a Project Yourself

It is possible to suggest a project of your own. In that case the company or institute has to seek approval from the thesis coordinator of your track as the project needs to be at a Master level. Approval on a self-found organization/company can only be given based on a project proposal (1 page) following the template.

The same applies if you want to do your thesis project at the company you work for. We do not however, recommend you doing your project at your own workplace. Our experience is that it will lead to delay or a stranded project, since thesis work and normal work are hard to distinguish. If you want to persist, please make sure that you do the thesis at another department than where you work. If you have any questions, please contact the thesis support coordinator or programme coordinator

Thesis Fair

The Thesis fair is usually held end of October / start of November. During the Thesis Fair you will meet organisations for an external project. They will all offer projects that you can use for your thesis project.

The organisator from the thesis fair (thesisfair-IvI@uva.nl) will contact you late September to invite you to an information session (please make sure you join) to explain how everything works. Invitations will be sent out via e-mail and Canvas.

All projects will be posted on the DataNose Thesis Marketplace page and you can contact the research group or organisation directly if you find an interesting project.

Project Requirements:

Every thesis project needs to conform to the requirements below, unless a UvA supervisor wishes to deviate from them and as long as the examiner agrees with the deviation.

DS projects require:

- Hand-labelled data with a ground truth available before April (no self-annotation and no synthetic data)
- Sufficient complexity going beyond simple linear regression and other simple approaches
- Proper setup (cross-validation, using more than 1 dataset, train/test, et cetera)
- Clear addition to the scientific literature (not just applying a well-known technique)

IS projects require:

1. Any quantitative or qualitative study in which validation has a proper place

** When interviews are used to get a requirement set, the set must be validated and this will normally be done by means of a design (interface, small algorithmic test, outline of a test framework, et cetera)*

Guidelines

Students need to follow the guidelines (for each thesis section). The maximum length of the thesis is 10 pages (including references, excluding appendix). Though the length appears to be short, students are expected to be redacting the thesis text frequently to really get to the essentials. You will have to do same if you publish in a scientific journal.

Step 2 : Choose your thesis committee and submit a project description on DataNose

Step 2.1: Define your thesis committee

The committee will comprise of:

Internal project

1. An UvA supervisor (from within Faculty of Science, FNWI)
2. An UvA examiner (needs to be on the list of examiners)

External project

1. A daily mentor
2. UvA Supervisor (from within Faculty of Science, FNWI)
3. UvA Examiner (needs to be on the list of examiners)

Your UvA Supervisor can act as your UvA Examiner if that person is on the list of examiners. In this case the second thesis committee member does not need to be on the list of examiners but can act as second assessor (must be from within Faculty of Science (FNWI). In some cases this will make it easier to find a second person for your thesis committee.

Two separate members of staff are required to complete the grading of the thesis. Students with an external project will have a daily mentor who will act as an advisor to the student but will **not** be involved in grading your thesis.

Here are the definitions of each role:
Role Supervisor: The supervisor is a staff member, postdoc, or PhD student at the Faculty of Science (FNWI). The role of the supervisor is to provide periodic supervision about the thesis. This includes scientific guidance of the project and at least 5 meetings to discuss the progress reports every student needs to upload. It is the responsibility of the student to incorporate the feedback in their thesis.

VU supervisors

It is also possible to have a supervisor from the VU as your internal supervisor. They will need access to DataNose for which they can contact the programme coordinator.

Role Daily Mentor (only for an external project): The primary role of the mentor is an advisory role to provide high-level guidance and to provide input for the organisation's project material. Sometimes they may provide scientific support if they are also researchers or experts. The mentor will not have a part in the grading procedure but can provide insight into the actions and behaviour of the student during the process.

Role Examiner: The examiner is a staff member or postdoc at the Faculty of Science (FNWI). The role of the examiner is to provide an independent assessment of the quality of the thesis. The examiner is not involved in direct supervision of the student but can be involved indirectly, e.g. to guide the supervisor in the process, or to co-author a publication. The examiner must be on the list of examiners.

How to find your Supervisor:
Please use the document available below as a guide to finding your supervisor. The supervisor should be found by you as soon as possible but you will need a good grasp of what project you want to do. Please make sure you have an outline of your research questions to present to potential supervisors

When searching for a Supervisor please use the following protocols:

- only contact one potential supervisor at a time
- Contact the education coordinator of a research group to help you find a potential supervisor on your topic
- wait for their response for a week before moving on to a further possibility
- explain your project in detail and why the person you are contacting would be the best fit to supervise your project

How to find a supervisor (PDF)

How to find your Examiner:
Discuss with your UvA Supervisor if they have someone in their research group who could act as examiner. You can use the education coordinator for this purpose. In case this does not lead to an examiner the programme will help you find one. If someone has been linked to your project as examiner please add them to your project page on DataNose.

Step 2.2: The MSc Thesis Project Page and Thesis Form on DataNose

It is mandatory to fill in an online Master Thesis Form in DataNose on your Master Thesis project page. You need approval from your supervisor before you submit this form as you cannot make changes to it yourself. We recommend submitting the form by the 23rd of December 2022 for parttime students and 10th of January for fulltime students.

You will be asked to complete the 'Base Data' form:

1. A working title
2. The ECs (please refer to the start of this page for the correct ECs)
3. Your UvA Supervisor (internal or external)
4. Your daily mentor (only external)
5. Your UvA Examiner (select from the list of examiners)
6. If the project is Internal or External
7. The organisation or Institute (and department/research group)
8. The location of the project:
    i. City
    ii. Country

You will then be required to upload your 'Project Description'. This description can be the same description found on the Thesis Marketplace or the one provided by the research group. It is not yet necessary to upload your thesis design, if you are a fulltime student. This will be done in the next stage of the process. If you are a parttime student you will most likely complete the base form earlier and upload your thesis design around Christmas.

You will use this same page during the entire process, thesis form, thesis design, final version of thesis.

I don't know who my examiner is yet
If you do not know who your examiner is at the moment, please leave the field blank. When you have an examiner, you can email the programme coordinator

I do not have an UvA supervisor yet

If you do not have a UvA supervisor yet then please put – in that field and contact the programme coordinator that you are still looking for a supervisor.

My examiner is not in the list
When your proposed examiner is not in the list than this means he has not been approved for this by the Board of Examiners. This means you need to choose another examiner as not everyone is approved to act as examiner. If you have questions about this, contact the programme coordinator.

My supervisor is not in the list but works at the VU university
You can also choose the option 'not in list' which gives you the opportunity to add someone new. If this does not work, contact the programme coordinator. This possibility only applies to supervisors who work at the VU.

My daily mentor is not in the list
Choose the option 'not in list' and add someone new.

Step 3: 5 Milestones and Thesis support sessions

Thesis support sessions

The educational intentions and goals of the thesis support programme is to help support the student and thesis supervisor by providing non-content specific information, encourage inter-peer relationships and community, and improve the thesis experience for the student. This is achieved by regular small group sessions with a tutor where students are encouraged to help each other by utilizing the resources provided. The sessions run alongside thesis supervisor meetings and the supervisors are kept informed on the topics covered in the sessions. If you have questions about the thesis support sessions, you can contact the thesis support coordinator through Canvas.

Step 4.1 - 5 Milestones (deliverables)

You will have to submit 5 milestones in Canvas (2 of them also in DataNose).

It is mandatory to hand in these milestones and to give peer feedback to pass for your thesis. Full attendance to the thesis support sessions will earn you the possibility of extra feedback on your thesis writing.

Your UvA supervisor will be updated on whether you hand in the milestones. If you did not submit one or more of the first three milestones, your supervisor will be advised to consider terminating the thesis midway. One of the requirements to complete the thesis is that you handed in all milestones. It is up to yourself whether you send your milestones to your supervisor or not.

- Milestones Data Science track
- Milestones Information Systems track

Milestone 1 - Thesis design – deadline February 19th - DataNose + Canvas

The Thesis Design is performed by the student as individual work but supported by the supervisor. Students need to find a supervisor. If they fail to find a supervisor, students need to ask the master-thesis coordinator for assistance in finding one (preferably before uploading the thesis design).

Deliverable: *A PDF that is no longer than 4 pages (including references) in ACM format (double column)* You can use the Overleaf template Links to an external site.(document class Thesis Design).

The student has to:

- *describe the research problem, context/scientific field, scientific relevance and the Research Question (with potential sub-questions)*
    - it is possible to position the scientific field in a task-oriented manner. Examples of this are: Natural Language Processing, Image Classification and Information Retrieval. It is also possible to position the scientific field in a subject-oriented manner, like Medical or Agricultural Science.
    - indicate how the work is grounded in literature (research gap) and how it builds upon state-of-the-art research
    - mention resources (data, algorithms, software, etc.), argue for the research method(s) you will use and describe how you evaluate your results
    - describe the risks (like not getting the data on time) and describe your plan B for each of them
    - present a project plan (with a Gantt chart or table) with results per week. (Be sure to describe achievements instead of actions)

The schedule needs to make clear how the different pieces of the thesis work can be achieved within the given time frame until the end of the programme. The report needs to be written in English. The final approval is done by the supervisor. The final electronic version of the Thesis Design will be submitted (*via datanose*) and the supervisor will receive a message to read it and give approval. You can find specific instructions on Canvas. *Please be aware that you can only upload the thesis design once in DataNose, make sure it is the correct one.*

The thesis design should have the following sections completed:

1. ***Introduction with Research Question:*** introduce your topic and the question(s) that your research is targeted to answer[1].
    - make sure that it is not a yes/no question. It can be helpful to start with "to what extent" and to make sure that is comparative with a baseline. For every paragraph, every subsection in your thesis, it should be clear to which research question it is connected. All things you can find in the literature can never be an answer to a research question. To find the answers to your research questions, you need to do research! This means that you work with data, do experiments, code, think, play and

[1] see further reading: Zobel - Writing for Computer Science, ch 4, p35-50

experiment. Avoid questions that can be trivially answered, like "Is it possible..." (yes, everything is possible, well almost everything).

2. ***Literature Review:*** positioning your research in the relevant background and related research (5-15 references)
    - your work is grounded in earlier work done by other researchers. That means you use techniques and methods, ways of measuring and evaluating, datasets and the terminology used by others working on the same or a related research problem before you. You want to compare your results with the work of others. This is especially true for key papers with respect to your research – the State of the Art (SOTA). It could lead to a hypothesis, which is the answer to a research question that you expect based on previous literature. Apart from grounding and comparing, you want to inform the reader on the SOTA, the state of the problem and the solutions. You also show that you know what you are talking about, that you know what is "for sale" and that you use the best there is.
3. ***Methodology:*** which methods you are using to systematically research your topic, and by which you are answering your research questions. This helps to check the validation and verification of your research. Be sure to describe how you evaluate your results.
4. ***Planning:*** your planning on experimenting, evaluation, writing etc.
5. ***Risk assessment:*** describe the risks, and describe your plan B

The content of this proposal can be reused for your final thesis. Be aware though that the related work section needs to be more substantial than in the thesis design.

https://canvas.uva.nl/courses/6056/pages/master-thesis-overview-+-good-example-theses

Milestone 2 for Data Science Students: Exploratory Data Analysis – deadline March 19th - Canvas

Data Science students:
Deliverable: *A PDF of your Jupyter notebook that has a minimal length of 3 pages and includes your GitHub link*

You can use the Python template. Follow the instructions for the Exploratory Data Analysis. You can find an example here Links to an external site.

Description EDA:
You will need to do an Exploratory Data Analysis (EDA) at the start of your thesis. In your EDA, you are going to understand your data. You make an EDA, because you can better analyse, debug, explain and improve your system with this understanding. You focus on these aspects of your data which are central to your research questions, to your methods and your desired outcomes. While doing the EDA, you discover anomalies, missing values, outliers, mistakes (typos/...) that can be repaired. You can clean the data and repair mistakes, but make sure that it is totally transparent (what you do, why you do it and what effect it has on your corpus).

Be sure to upload the structure of your dataset. List all the features. Please find one extra dataset, next to that set provided by your internship (or university project). The best option is open source with published results and scores. In this way, you know what your model should aim for. Even if

your model performs poorly on your internship data but is somewhat in line with the outside data set, you can get the master thesis to a pass. You will then need an error analysis with some cunning hypotheses on the causes of this strange mismatch. This extra dataset gives you a piece of mind, and if something goes wrong, a direction to look for reasons.

Milestone 3 for Information Systems Students: Draft Literature Review – deadline March 19th – Canvas

Information Systems students:

Deliverable: *A PDF that has a minimal length of 3 pages and includes your search query refinement pipeline*

You can read this article on how to make a search query for your literature review. Check the guidelines for writing the related work section before handing in the milestone.

Description Literature Review:

You can find tips and useful tools with respect to the literature review here. A review should give a clear, complete and relevant background, perfectly tailored for the problem at hand. The use of literature and theoretical background is assessed as one of the master thesis grading criteria.

Description EDA:

If you are working on a Data Science project (often NLP), you can do an Exploratory Data Analysis instead of a Literature Review. You can use the Python template. Follow the instructions for the Exploratory Data Analysis. You can find an example here.

Milestone 3: Draft Methodology Section – deadline April 16th – Canvas

Deliverable: *A PDF that has a minimal length of 3 pages in ACM format (double column)*

You can use the Overleaf template (document class Thesis). Check the guidelines before handing in the milestone. You are advised to watch the DSP lectures relevant for your research.

You are handing in a draft of your methodology and experimental setup section. In the section of the methodology, you go into more detail on the methods that you will use and that you have mentioned in the related work section. One function of the methodology is to describe what you do. It is not just about what you are using, but how you are using it in a particular way. The other function is to justify what you do. Why did you choose the current methodology over other plausible alternatives? Does the research design probably measure the effect and is it credible in terms of reliability and validity? How did you go about solving or making progress on the research problem? In particular, you pay attention to that new little thing, that change, that great idea, that you add to the existing method.

Be sure that the methodology section is not a textbook section (readers can find that elsewhere, probably better), nor a place to copy/paste difficult intimidating formulas. A good thesis will the type of research design clear that is used with reference to earlier, similar studies. Use most space for your addition. You can make a separate section on the experimental setup (or incorporate it in the methodology section). The function of the experimental setup is that the reader can replicate your experiments. You give *all* the setting you used in your experiments. The description of the data is also incorporated in this section. You can use insightful graphs from your EDA (if relevant in your case).

Milestone 4: Draft Results Section Analysis + results – deadline May 21th - Canvas

Deliverable: *A PDF that has a minimal length of 3 pages in ACM format (double column)*

You can use the Overleaf template (document class Thesis). Check the guidelines before handing in the milestone. You are expected to give for each research question the outcome needed to answer it. If you do not have results yet, give your expected answer in a form that is as concrete as possible.

You are handing in a draft of your result section. Key is that it is clear how the outcomes are related to your research question in the form of a table or graphic. Structure the section in such a way that the reader only has to look at these two things (and can safely skip all else): the question and the table/figure with (elaborate) caption. It is important that tables/figures are unambivalent. There is much need for a perfect caption, perfect labels and smart design of table or figure. The reader should be able to use 100% of his or her brain to understand the outcomes, not to try to figure out what was meant. Please note that you explicitly answer your research questions in the conclusion, not in the results, given the limitations you qualify in the discussion.

Most good computer science papers conclude that something is so many percent faster, cheaper, smaller, significant or otherwise better than something else. Avoid vagueness, handwaving results in terms as "very small". If you must be vague, you are only given licence to do so when you can talk about orders of magnitude of improvement. There is a tension in that you should not provide numbers that can easily be misinterpreted, but on the other hand you do have room for all the caveats.

Milestone 5: submit Draft thesis – deadline June 18th – Canvas

Deliverable: *A PDF with a maximum length of 10 pages (including references, excluding appendix)*

You can use the Overleaf template (document class Thesis). Check the guidelines before handing in the milestone Though the length appears to be short, students are expected to be redacting the thesis text frequently to really get to the essentials. You will have to do same if you publish in a scientific journal.

- This last upload is your last chance to receive feedback on your thesis and make final adjustments before you hand it in on June 30th
- Be sure to send the draft version to your supervisor as well, so that they can give you feedback and a go to hand in the final thesis

At this point, it is important to pay special attention to the discussion section. You go into an an explanation why you did (not) find what you expected beforehand. You should critically reflect on concepts like generalizability, reliability and validity. Formulate options for further research that follow from your research. Be sure that the limitations are reflected in the conclusion as a qualification.

The function of the discussion section is to compare your results with the *state of the art* and to reflect upon the results and limitations of the study. You can start with a section in which you compare the results of your research with previous studies. Be sure to make use of concrete results. Make use of references. If you did not find what was expected, it is important that you go deeper

into possible reasons for this. Are there comparable studies in which no results were found? What would be the mostly likely scenarios for not finding the expected results? It is important that you are able to justify that fixable problems with the research set-up are not the most likely reason for not finding the expected results. It will help to formulate a theory for your results.

The limitations of the study should be noted. Preferably, they are related to key concepts like reproducibility, scalability, generalizability, reliability and validity. Make sure that if the issues are serious that you make clear how you take the limitations into account in the conclusion. You can already hint to future work to which you come back in the conclusion section. Consider whether there are alternative conclusions that are consistent with the results that have been presented. It is helpful if you already discuss what the value of your research is considering previous research. Does it fill the research gap? This gives a bridge to the conclusion.

The function of the conclusion section is to answer all your research questions. You start with a recap of the scientific relevance and problem statement. You then present the answer to the research question. You will need to (indirectly) rephrase the questions. For example: "*This research aimed to answer...*" There should be a statement on how the limitations of the study qualify the conclusion. If an improvement only shows in specific circumstances, this amounts to a qualification. Make sure that your qualification is properly connected to your statements in the discussion. You then go to a statement in which you state what the value of your research has been when compared to the *state of the art.* What does the research add? What are the implications of your answer? Is it going to change the world (unlikely), be a significant "win", be a nice hack or simply serve as a road sign indicating that this path is a waste of time? You finish the conclusion section with a recap of future work. You can make a link here to the limitations of the study in the discussion section. Be sure that you argue what is the most promising way forward instead of stating which research "must" be done.

June 30th - Upload final version thesis – DataNose

After receiving the final feedback mid-June you will upload your final version in DataNose on the 30th of June, 2023. Uploading will happen on your MSc Thesis project page in DataNose. In some cases you still need to press the 'select assessor' button under 'actions' before you can see the form where you can upload your thesis

Datanose or uploading problems when uploading your final version of the thesis?
If the option is not available to upload your final version, then this is a Datanose issue, please use the 'feedback' button on the lower right of your Datanose thesis project page, stating that you are missing this option. The Datanose team will then 'update' your page re-enabling this option. The thesis project page is the same page you filled out at the beginning of your thesis project under step 3

Step 4: Writing your Thesis

The master thesis has to be written in English.

The thesis should be:

- Two-column ACM format (acm.org/publications/proceedings). Overleaf template: The Overleaf template can be found here or downloaded as folder
- Must not exceed the length of 10 pages (including references, without appendix).

- The sections are ordered following the logic of the Guidelines: https://canvas.uva.nl/courses/6056/modules/items/1428201
    - Introduction
    - Related work/background
    - Methodology/experimental set-up
    - Results
    - Discussion
    - Conclusion
    - References

Use the following **Cover page's** (but they are already incorporated in the Overleaf template)

UvA Scripties Database
The UvA Scripties Online database offers previously written Theses from former students of the master IS You can use this database to find examples.

- General information
- Example Theses

Step 5: Thesis Submission

Thesis submission deadline
You will all have the same start and end date for your thesis project. You will be able to ask for an extension if required through the extension form on DataNose . If you do not complete an extension form and go over the stated end date, you will be subject to a grade penalty.

For the academic year 2022-2023 the final end date is

- **End date: 30/06/23, 23:59h**

Thesis extension
An extension cannot be requested later than 10 working days (2 weeks) before the deadline of 30th June. If you require an extension for your thesis you are required to complete a Thesis Extension Form. You can find this form on your DataNose project page under the 'Actions' menu on the right side of the project page.

To complete the form you will need to list the reason for the need for an extension as well as a proposed new end date. This will then be sent to the MSc IS Thesis Coordinators who will approve or reject the extension based on the information provided as well as accept or propose a new end date. The form may also be sent to the study advisor if required (based on which reason is selected).

The form must be submitted as soon as the relevant issue arises, not at a later date. The deadline for the Thesis Extension Form 2022- 2023 is: **16th June 2023**

If your extension has been approved, your end date will be updated on your DataNose project page. If you go over the new deadline than you will incur a grade cap. You can apply once for an extension after this we expect you to submit the thesis.

The grade penalty system

If you go past the outlined end date on your project page and do not submit an extension form you may be subject to a grade penalty. The grade penalty system is as follows:

- **Deadline** – 30 June 2023 at 23.59h
- After the deadline the grade cap of 7 applies for everyone who submits late, unless you have requested an extension and got approval of said extension
- If you submit after July 31st the grade will be capped at 6.
    - Furthermore your thesis won't be graded before the new academic year. You will have to re-enrol.

Step 6: Evaluation and Rebuttal

Step 6.1: Evaluation - Review

The grade is determined by the two committee members (UvA supervisor and examiner) through an online form that can be found on DataNose. They will both fill out the review and if applicable ask for clarifications and explanations. At the same time they will provide an indication of the grade to let you know in what range your grade is at the moment.

At this point you have the choice to accept the review and the indication of the grade and receive your final grade. If you want to give an explanation after the review than you can start the rebuttal. **The rebuttal is optional and needs to be filled out within 1 week after receiving the review if this doesn't happen the final grading will be done.**

The timeline is as follows:

- 2 weeks for the review
- 1 week for the rebuttal
- 1 week for final grading

Step 6.2 Rebuttal (optional)
After you have received the reviews from both your UvA supervisor and examiner you have the opportunity to complete a rebuttal. This will be done through the evaluation system on DataNose. The rebuttal form can be seen as a written replacement of the defense. You have the opportunity to give explanations or to clarify certain aspects of your thesis as requested by the supervisor and examiner to show your knowledge on the subject to a deeper extent. As with the defense the rebuttal will be taken into account when the grading is done but it is up to your supervisor and examiner to determine how and if it will influence the grade. It is not necessarily so that a rebuttal will lead to a higher grade.

This rebuttal is optional.
The rebuttal for the student consists of 4 parts were the students gives answers and clarifications on both the supervisor and examiner review

On Canvas you can find an example of the rebuttal form.

Grading

If you decided to do the rebuttal the grading will be done when the examiner and UvA supervisor have read it. If you decide to not start the rebuttal the grading will be done as soon as possible. Both examiner and UvA supervisor will fill out the grading form which will lead to your final grade. They will also request feedback from your daily mentor if you did an external project to incorporate their opinion in the grading. For this feedback a template is available to use.

The MSc IS Thesis Evaluation and Rebuttal Form contains the grading rubric for the master thesis. The weights used are indicative and used as a guide by your Thesis Committee members to

determine your final grade. The thesis committee can differ from the rubric if they feel this reflects the level of thesis better.

The grade will be validated in DataNose and after this is done you can apply for your degree.

Please be aware that due to the holidays theses won't be graded in August. If you hand in your thesis before the deadline this won't be an issue but if you hand in late make sure you re-enrol to the programme as you will most likely receive your grade in September.

Grade discrepancy
The supervisor and examiner will discuss the final grading and fill out the grading rubric together. In case they do not agree on a final grade they can appeal to the Board of Examiners to have a third person to take a look at the thesis.

In case the student is marked 5 or below it will be marked as a discrepancy and a third person will be appointed by the Board of examiners to oversee the process.

FAQ - One or both of my reviews are indicated with a fail, what do I do?

If one or both of your reviews are indicated with a fail than you will have to start again in the next academic year with a new project. In this case it is also wise to contact your examiner and UvA supervisor and ask for further clarification.

Step 7: Graduation and Getting your Diploma

After your grade has been established in the system **you have to actively apply for your diploma.** Please don't forget this as you can't apply for your degree when you are unenrolled from the programme. If this happens you will have to wait a full year before you can apply for your degree, please do not forget or when in doubt reach out to the Education Desk or the programme coordinator.

Graduation procedure IS
For information on graduation procedure and dates, please have a look at the website Applying for your diploma "step by step"

When you apply for your diploma you will also be asked if you want to participate in the ceremony in October. If you don't want this you can just pick up your degree at a different moment.

If you have any questions regarding graduation and getting your diploma you will need to contact the Education Desk FNWI.

You can contact them at E-mail: servicedesk-esc-science@uva.nl (*If you contact the Education Desk FNWI by e-mail, please provide your studentID and your master's programme*).