Master’s thesis project guide

Course NGEM01, 30 ECTS

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Syllabus master thesis project course NGEM01

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Quick checklists

This is a short checklist for reference, but please do read the whole guide. Re-read relevant sections upon reaching the different stages of the course.

Checklist thesis proposal:

Ensure that there are clear links between research question, methodology, data analysis and research justification. Present specific ideas to be ‘tested’. Be comparative! Avoid basing the plan on only exploration or practical work without connections to ideas, theory and research literature.

Reach an agreement with regard to when and how often you and your supervisor will meet. Include a number of deadlines for thesis drafts in the time plan and at least one initial supervisor meeting to keep up the progress. In addition, include deadline for half-time progress report in your time plan (exactly in the middle of the period).

Checklist for the final version of the thesis

Submit thesis to supervisor for a final check in good time before submitting to Urkund for examination. In addition, review the thesis with regard to the following points:

- Did you define your research question and specific aims clearly? Are the ideas testable, specific and anchored in literature/theory? Control that each sub-question or hypothesis is addressed in the results, discussion and finally in the conclusions.

- Main purpose of a master thesis is to show one’s ability to perform an academic research study. This should also be clear from your report. A list of what this means is given in section 4.2-4.4. Read this section once more.

- Are all figures readable and complete? Text embedded in graphics should be readable when printed in A4 size. Do all figures and tables have corresponding captions and are they referred to in the text? Are figures and tables positioned close to the text which first refers to them? Do the captions contain sufficient information about where the data come from, what geographical area and time frame they represent, how many observations were made (n =) etc?

- Are all running text references included in the reference list? Are all references in your list also used in the text? Did you apply one consistent reference-style (Ambio) and are all references presented with relevant and complete information? If you are uncertain check the paragraph on references or ask the staff in the library.

- Does your report have an English summary?

- Run a spelling checker if you did not yet do this. Ask fellow students to comment on language and grammar, as needed.

- Does your report have a logical structure? Avoid loose text segments with piling of facts, without pushing forward a reasoning. Each paragraph should have its own point, and subsequent paragraphs should build on the previous ones.
- If you make use of pictures/figures from others, check if they are copyright protected and if you need permission to use them. Clarify permissions to reproduce graphics in the captions, or make your own modified figures with reference to the original source (‘Modified from [Reference]’).

**Checklist for your presentation:**

The length of your presentation should be 20-30 minutes. If you have as much as 40 slides you will probably need more than 30 minutes. Do not get carried away with too much detail. Make clear connections between question, research motivation of study, background information, results, discussion and conclusions.

You need to prepare your presentation suitable for a group that did not read your thesis nor are experts in the subject. Start with a clear description of the objectives of your study and the underlying motivation/justification. This includes giving an overview how your research fits into a larger picture.

Make sure that your slides are readable, and without too much text. Do not be hesitant about including a few key references to literature in the presentation.

**Checklist for publication of thesis:**

- To prevent email back and forth on the final version, take your time to prepare the thesis for publication. Carefully read sections 5.3-5.4 on how to publish!

- You have to submit your thesis to LUP. This is the way the thesis is archived electronically. It is a general rule to make your thesis public and downloadable in LUP to the general public. However, because you own the copy rights, you need to agree on making it public. If you want to limit the open access in order to first publish a journal article based on your thesis, then this is possible. Read more in section 5.4. Check carefully that you have permission for using reproduced image materials.

**NOTE!!**
The master thesis course is not finished before the thesis is published in LUP. Before this the grade is not definitive in LADOK and you will not be able to issue the diploma. If you do not finish the course with publication in a reasonable time (max one semester) after your seminar, then the grade ‘FAIL’ will be recorded in LADOK.
1. Introduction

The Master’s thesis project is a compulsory course for the master degree. It is not a regular course with lectures and exercises, but carried out as independent, supervised scientific work that is presented through a seminar and a written report, and graded by an exam committee. The project is based on ‘state of the art’ subject knowledge from recent literature, but above all it involves a substantial degree of data analysis, either based on own field/laboratory measurements or modeling using existing data. The formal objectives are described in the course curriculum (Appendix A).

The thesis project can be considered as the point where you, as student, get to show that you can plan and perform an independent research study. Main focus of the work is on correct academic methods and a critical analytic attitude. It is the opportunity to show your skills, but also to improve your skills in doing a research project within the given time frame, by applying scientific methodology and finally by presenting results both at an oral presentation and in a final report.

Some information regarding the (master) thesis is given on the homepage of the Faculty of Science https://www.science.lu.se/education/graduation-and-career/degree-projects-and-papers (2019-10-07). On the course NGEM01 we are following the rules and recommendations which have been ratified by the Education Board of the Faculty of Science (Beslut Dnr N 2011/130, in Swedish): https://www.naturvetenskap.lu.se/sites/naturvetenskap.lu.se/files/regler_examensarbete_avancerad_niva.pdf

In short, the thesis project consists of the following parts:
1) Finding a suitable subject for the project
2) Identifying a supervisor and coming to an agreement on the plan
3) Setting up a project plan, time schedule and, as needed, a budget
4) Performing the research by collecting, analyzing and interpreting data
5) Writing the report
6) Presentation and defending of the master project at a seminar
7) Finalizing and publishing the thesis

Good research practices involve keeping a critical attitude toward your work, comparing your results and statements with scientific literature. This is strongly reflected in the grading criteria used to evaluate the master project (see Appendix B). You should be able to give an overview of the state-of-the-art within the actual research area. It is crucial to show in your writing that you have acquainted knowledge on the subject. At the defense seminar you need to need to be able to answer questions, showing that you can be critical (in a constructive way) toward your own work.

You will be supported throughout the course by a supervisor, but do not expect the supervisor to do the work for you. Also note that it is not the supervisor’s responsibility to ensure that you get a particular final grade (like pass with distinction). Read this guide to know what is expected.
2. Before the start of your master thesis project

For most students, the master thesis project will start within 1-1½ years, so it is important to define what you would like to do. Many types of projects, for example abroad within an international exchange program, require arrangements to be initiated already during the first year of the study program. The subject of your degree thesis can potentially function as route to future jobs. Consider in this respect the possibility of performing your project in collaboration with a non-academic partner such as a private enterprise or within public administration.

2.1 To find a project subject

We expect that students after some years of studies can define at least an area of interest for the thesis project, if not already a more specified subject. The exact subject is determined in consultation with a teacher/supervisor. It is crucial that the task fits the time schedule of 20 weeks and the subject area of your master degree, i.e. Physical Geography and Ecosystem Science, Geomatics or Atmospheric Sciences & Biogeochemical Cycles.

Generally, you will be more motivated to perform the project if you define the subject yourself. Try first to define broadly your research interests, before consulting course coordinators and teachers. Typical thesis subjects at the department are related to the actual ongoing research, so check the homepages on the department research and the Lund University research portal. A list of supervisors’ expertise topics can be handed out by the course coordinator upon request. At the department, we have more than 25 faculty members plus additional researchers, post docs and late-stage PhD students who can take part in the supervision on NGEM01.

A list of possible specific project topics at the department can be found here: [http://www.nateko.lu.se/student-services/internships-thesis-suggestions](http://www.nateko.lu.se/student-services/internships-thesis-suggestions)

Other possibilities for subjects can be found at other departments and outside of the university. Many municipalities and companies have a link on their homepage with suggestions to thesis projects, or you can contact them and discuss possibilities. Some suggestions of companies and municipalities are Sweco, Tyréns and Länsstyrelsen. External projects are beneficial in many ways, but remember that the research question must have academic relevance. Just doing a practical work task for an external organization is not sufficient at the Master’s level. Therefore, discuss carefully the actual research question with potential supervisors at the department.

It is recommended to start this process in good time before the start of the course, to avoid losing too much time of the project. At least use the semester before the master thesis work for finding a subject. You are welcome to contact the course coordinator to discuss options and ideas before contacting other teachers to discuss the options with them. Moreover during any subject course you can discuss possibilities with the teachers. At this stage, make clear that you want to discuss ideas without requesting that the teacher will act as supervisor. The definitive allocation of supervisors is done by the course coordinator at the moment that you start your thesis work.
Subject should be related to completed courses – course requirements

When you choose a certain field of research, take care that you have completed relevant courses related to that field. This gives the basic knowledge you will need and many supervisors actually require that you have completed the given courses in their field. For example, if you like to select a subject in ecosystem analysis, you should have completed Ecosystem Analysis (NGEA04, or comparable) and/or Greenhouse gases (NGEN14). Would you like to work with model simulations then an ecosystem modeling course is required etc. The use of qualitative methods such as analyses of texts and interviews may require special skills in qualitative research methods, obtained from courses taken at other departments.

2.2 Course syllabus and requirements

The course objectives, content, examination and requirements are described in the course curriculum (Appendix A). A further description of the examination is presented in the section examination and examination criteria. To be eligible to the course and examination you need 225 credits of scientific studies (this includes a bachelor degree, or the corresponding 180 credits including a bachelor’s level thesis). At least 45 credits of advance level courses must be completed before the thesis work can begin. In general it is recommended to perform your Master’s thesis project within one period of 20 weeks full time, or 40 weeks half-time. However, it is also possible to split the project into sub-periods of 15 credits and do other courses in between. The exact set-up in such cases should be discussed with the study advisor or master thesis course coordinator.

2.3 Registering

As opposed to other courses, the Master’s thesis course is applied to directly on the department web site (https://www.nateko.lu.se/form/internship-masters-degree-project). A combined registration and introduction meeting is held by the course coordinator on the first day of each new semester. Upon starting your project you will be registered on the course in LADOK as with all other courses. If you are not registered, then you cannot get a grade on the master thesis work. Being registered on the course is also important in respect to insurance and field work, especially if you are not registered on the master program but take the course separately.

2.4 Working together with another student

As the thesis project is the final project of your master studies, you should perform the project independently, producing a report solely by yourself. However, in certain cases it is allowed to do a master project together with another student. An example is when the project is done abroad, e.g. a MFS study. It is required that even if you work together on a common project, you need to define two sub-projects for each of the students, resulting in two reports. An alternative (however so far never tried) is that
you each write one paper (shorter report), and put the two papers together into a compilation thesis with a common summary and synthesis section. This format would be similar to a MSc research thesis from North America or a licentiate thesis in Sweden. Such a thesis would be expected to be twice as long as a normal thesis. If you are interested in this alternative, a discussion with course coordinator should be initiated at course start.

2.5 An external project

It is possible to pick a subject from another institute or university, both nationally and internationally, as long as there is a close relation to the field of your master degree. Collaboration with institutions focused on e.g., mathematics, physics, geology, environmental sciences etc are possible as long as the topic fits the subject of your master degree. Discuss with the course coordinator and plan in due time.

When you want to do a thesis project at another university you have two options: 1) register on this course NGEM01, but perform a project at another university with a supervisor from that university and a co-supervisor from our department. The latter supervisor is needed for keeping the contacts, ensuring academic quality and to take care that the subject stays in the field of science. We will not be able to reimburse salary costs for the external supervisor; 2) You can register to another corresponding Master’s thesis project course at the university where you do your project and then, after finishing the course, have it accounted in your records diploma to replace NGEM01. Note that the requirements for the master thesis course at the other university should be comparable with NGEM01, so around 30 credits and examination in form of oral presentation and report. If this is not the case, you can discuss the options with the course coordinator.

If you would like to do your thesis work at another university outside Sweden you should try to get it organized within an exchange program. This makes it easier considering insurances and possible stipends. This often means that you will be registered as exchange student on the other university project course and that the course has to be accounted to replace NGEM01 in your master degree. Note that the same admission requirements that are given for the NGEM01 must also be fulfilled before you are eligible to begin a Master’s thesis course at the other university.

Theoretically it is possible that you will work on your thesis project at an enterprise, with information/results that the company does not allow to be published or presented outside the company. In those cases it is important that you come to an agreement about publication of your results and thesis. It should be discussed with the contact person at the company, your supervisors and course coordinator. The thesis is considered as public work and should be published openly. In some cases sensitive information can be published in an appendix only made available to the exam-committee. Read more related information on this in paragraph 5.3 on publishing in LUP and appendix I.

MFS

MFS stands for a Minor Field Study, which is a stipend from the Swedish International Development Cooperation Agency (SIDA) for a two-month project in a
developing country. The stipend is organized through ‘the International Programme Office for Education and Training’. The stipend is however not open for all students. You need a Swedish citizenship or a permanent residence permit and completion of courses corresponding to 150 credits before you can receive the stipend. Citizens from other Nordic countries should have lived at least one year in Sweden.

You can use the stipend (ca 25000-30000 SEK) for collecting data for your thesis work. More information about the stipend and the application is available in Swedish on the following link:
https://www.lu.se/studera/studera-utomlands/stipendier-utlandsstudier/minor-field-studies

Being abroad and collecting data for the Master’s thesis within a MFS study may require additional time for the work to be feasible. Therefore, consider to fit the MFS-study itself within the practical work-course (NGEA51) and then use the collected data in your master thesis. By combining the courses NGEA51 and NGEM01, a total amount of 30 full-time weeks can be spent on work related to the Master’s thesis, instead of 20 weeks.

Read more about MFS here:
http://www.mfs.nu/
3. Starting your master’s thesis project

3.1 The course setup

The course NGEM01 has a limited number of scheduled meetings, both during Autumn (HT) and Spring (VT) semesters. Besides the registration, meetings related to academic writing might be arranged upon request. Additionally, the faculty administration occasionally organizes half day courses on writing, usually once per term. Consult the homepage of the LU Faculty of Science for exact time of the lectures. Additionally, it is mandatory to participate in at least 5 MSc defense seminars, 2 higher seminars (e.g., department research seminars) and 1 PhD defense during your education. Additionally, you are required to act as opponent once, at the defense of a fellow student. A form for collecting chairman’s signature as proof of attendance at these seminars will be handed out by the course coordinator at the registration meeting. Hand the form back to the course coordinator when it is complete. Defense seminars given by your class-mates are in principle compulsory, even if you have collected the five required signatures for MSc defenses.

The thesis seminars are concentrated in periods at the end or just after the end of each semester. You need to have your thesis ready for examination ~1.5 week before the time slots for the seminars (exact submission dates are announced by course coordinator). In practice the nature of the project differs strongly and being ready in time can be stressful. If you have valid reasons and are not able to finish your thesis in time, it is possible to move the presentation to the next ‘slot’.

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<th>Period/term</th>
<th>Main period of seminars</th>
<th>Alternative period</th>
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<tr>
<td>Autumn term HT</td>
<td>Third week January</td>
<td>Third week March</td>
</tr>
<tr>
<td>Spring term VT</td>
<td>Second week June</td>
<td>Second week September</td>
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The exact periods for the master thesis seminars will be presented at the beginning of each term. If you need more time without a valid reason and the extension is more than 20% (or 4 weeks) the exam committee can and will decide not to apply the grade ‘passed with distinction’. This rule is a fixed rule from the faculty’s education board.

If you are doing your project externally, and have no possibility to visit Lund during the course, you may need to seek alternative ways to participate in the mandatory number of seminars. In these cases the seminars can be replaced with corresponding seminars at universities in your proximity, or by webinars. However, you need to travel back to Lund in order present your thesis and to act as opponent for a fellow student.

3.2 Your supervisor, what to expect

In many cases you will have a supervisor allocated already at the start of the course. In general it is the teacher with whom you came to agreement with on a more detailed idea/project plan for your thesis work. The supervisor will help you to get started and keeping you on track. However, you do the work and write the report. It is recommended to agree already at the start of the project on a number of meetings, where you discuss the progress of your work and possibly needed adaptations and
how to solve problems. You need to contact the course coordinator if the cooperation with your supervisor fails.

Keep close contact with your supervisor to keep track on your progress and time planning. Many students are not able to keep the time frame as often the tasks take more time than anticipated. Discuss the progress and set sub-aims on a regular base so that you can keep a time frame.

If you have to do large changes to the initial plan, it is a good idea to rewrite the project plan (see 3.3) and deliver this to the course coordinator (send to Martin.Berggren.lu@analys.urkund.se).

The supervisor should indicate ‘green light’ before you can submit the thesis for examination and present your work in the master defense seminar. However, if the supervisor considers the work insufficient, yet has already put a lot of effort to raise your work to the required level, then you can be allowed to present your work for the exam committee. In those cases the supervisor indicates that he/she does not approve the work, but leaves the grading decision to the exam committee.

3.3 First task: Project plan

Your first task will be the formulation of a project plan. This plan of max two A4 pages of text (+ references and possible figures/tables) should give a summary of your project. The plan must contain a working title and names of those who are involved in the project. Further you should formulate a main question and a number of hypotheses or sub-questions, as needed. Focus on the research questions, available data and methodology in the summary. Take care that you describe the available data in detail, and how to use the data in relation to the research question. Give a short background to the problem. In short the plan should be structured as follow:

- Project title or working title, persons involved
- Definition of the assignment and problem
- Research strategy such as measurement techniques, field methods, planning, data analysis etc
- Detailed time plan including expected date of seminar and delivery of report
- Budget on expected costs
- References

Present specific and testable ideas that are anchored in literature, and explain how the project can contribute with new important academic knowledge. A comparative study design is strongly recommended, i.e. where the ideas can be tested by making comparisons. The plan can be considered an agreement between you and your supervisor on what you are going to do and it is recommended that both are signing the plan. It is also recommended to define a number of meetings in the plan, if possible with exact dates or time periods.

Moreover, consider the plan as a way to formulate the boundaries and methods of your project. By formulating what you are going to do in your project you can see if it is a feasible project for the time of your master thesis (20 weeks). The plan makes it possible to discuss it with more persons. As soon as you have a plan that is agreed by
your supervisor, but no later than three full-time weeks from course start, you should submit this to the course coordinator (send to Martin.Berggren.lu@analys.urkund.se). The project plan is used to allocate already in an early stage the examiner who will eventually chair the exam committee.

Your examiner will be appointed directly after the project plan is handed in to the course coordinator. The full exam committee and opponent will be allocated to your project at a later stage of the project, allocated depending on your subject. The opponent will be one of your fellow students.

**Budget and reimbursement of expenses**

Any possible expenses related to your master thesis project should be discussed beforehand with your supervisor. Small expenses (3000-5000 kr max in total) can be paid by the department from the master’s thesis course budget, while larger expenses are only possible to cover if you and/or your supervisor have separate research grants that can be used for the purpose.

To avoid time-consuming and sometimes problematic reimbursement processes, it is recommended that you ask for supervisor’s help to do direct purchases through the university’s purchase contracts. Similarly, rather than using your own car and trying to get compensated, ask for supervisor’s help to book one of the department cars. This saves money, time and administration for the department, and you do not personally need put your own money on stake while waiting for a reimbursement decision. However, if it is completely unavoidable, discuss directly with CGB Kansli how to get reimbursed for personal expenses. Total costs above than 3000 kr must be well motivated, and the department does not pay total amounts larger than 5000 kr per project. Thus, while there have been master’s projects at the department with budgets of several hundred thousand kr, this has always been funded by external grants, stipends or scholarships – not by the department. Please note this to avoid unpleasant surprises.

### 3.4 Half-time progress report

When exactly half of your project time has passed, a half-time progress report has to be handed in to the course coordinator (via Martin.Berggren.lu@analys.urkund.se), to be forwarded to the examiner who is chair of the exam committee. The progress report is an extended version of the project plan, ca 10-20 pages.

- Expand on project plan to build a document with introduction, theoretical background and aim
- Add a methods section describing what has been done
- Add preliminary results
- Add preliminary thoughts for the discussion

If you do not have any results yet, you still need to hand in the half-time report. Explain what has been done in the methods part and explain why there are not yet preliminary results. The examiner will raise a red flag if the project work is going in the wrong direction or has halted. This will trigger a dialogue between supervisor, examiner and course coordinator on how to get the project back on track. The
measures that will be taken will vary from case to case, but the idea is to help the student early by offering the right support. A red flag on the half-time progress report does not affect the eventual grading (examination) in a negative way. Rather, the help on time may improve chances of grading above the pass level.

3.5 Working log – diary

It is recommended to keep a log book on your work. In this log you could write down your research and project steps, results and thoughts, but it should be a documentation of the time working on your project. If you have other activities during your master thesis work, for example a part-time job, parental leave, another course you should report this to your supervisor and course responsible, but also keep record of this in your course log book/diary. It is a good idea to have this book with you when you meet your supervisor and discuss possible needed changes in your setup. This log can become important if disagreements emerge with your supervisor.

3.6 Working facilities

For master thesis students the computer room Capillatus in Geocentrum I is available. Although it is recommended to work at the department and not at home to improve the efficiency, the number of working places is limited. In practice working at home or in the Geolibrary (second floor) may be needed.

Computers

In the room Capillatus there are a number of computers available for the students, but you will need a login to work on those computers. You will also have disk-space on the server. Contact the course responsible and the IT-service of the department if you need more disk-space than normally supplied.

Field work

Many master thesis projects include field work. Most commonly this field work is related to ongoing research on the department, but it is also possible that you have to do your own field measurements. Equipment for those measurements can be available from the department, but more often from the supervisor or the supervisor’s research group. It is possible to book a department car if you have a valid driving license. It is not guaranteed that the use of your own personal car will be reimbursed if you could have used one of the department cars instead.
4. Writing the report

4.1 The writing process and support

Besides doing research the main task in the master thesis project is writing the thesis. Many students need more time than planned for putting together the thesis and several become halted in the process. In first instance your supervisor should help. However it cannot be expected that the supervisor will correct your text in any possible detail, so if you have problems with the language and writing there are other possibilities for support. Check the literature list in chapter 6 for books on doing research, how to write and how to present. The book Lindsay, David (2013) Scientific Writing: Thinking in Words is recommended and available in Geolibrary.

Staff of the Lund University academic support centre are organizing courses on how to write a thesis and organize the thesis work. Please see their homepage or pay a visit to the student service to get more information.

http://www.lunduniversity.lu.se/current-students/academic-matters-support/the-academic-support-centre

Contact
Academic Support Centre
English.support@stu.lu.se
Skype: academic.support.centre
Twitter: @ASCAteLU

Visiting address:
Genetikhuset - Rm 148
Sölvegatan 29
Lund

The internet based support site AWELU is another source of recommended help in the academic writing process www.lu.se/awelu or http://awelu.srv.lu.se/

Additionally, there are two open online courses (MOOC) on academic writing available at Lund University:
https://www.lub.lu.se/en/services-support/student-support/academic-writing/open-online-courses-mooc-on-academic-writing

4.2 What is expected from the report

The report structure should allow the reader to easily follow your way of working and reasoning. Why did you do your research, what is the state-of-the-art in the actual research on the topic, what experiment did you do, how did your results lead to the conclusions you give and how are those in respect to what others have found? In practice this means that you should give an overview of the actual status of the field of research and what is written about it in actual peer review scientific papers. In the discussion of your results you should make comparisons between results from scientific studies and your own results.
Students on NGEM01 may not submit theses that are longer than 50 pages, counting from the start of the introduction to the end of the reference list. However, when needed, spacious figures and dataset that are peripheral to the results may be added as appendices, beyond the 50-page limit. These appendices should be included in the same file as the thesis, if possible (unless they are overwhelmingly large), at the end of the document. Similar to figures and tables, appendices must be referred to from the running text in the thesis.

4.3 The correct type of written presentation

The report will reflect what you did in the master thesis project and be your personal intellectual belonging. There are a number of criteria to keep in mind while you are collecting material, performing your analysis and putting this together by writing the report. The aim is to produce a scientific report showing that you systematically have a scientific critical attitude to all information and results that you present, as required for scientific academic work.

The scientific report should be presented such that it is possible to verify each fact and step. Own results should be critically analyzed so that the conclusions drawn are logical and easy to follow. The research problem must be formulated and put into a larger perspective, and aim/hypothesis clearly spelled out. The background to the problem is presented by describing the actual state-of-the-art of research on the topic and this is again used in a comparison with the results of the actual research. Facts are presented with references to scientific peer reviewed sources as much as possible. It must be possible for the reader to verify what is presented. The experiment/work needs to be presented in such a way that it can be repeated by the reader.

4.4 Structure of the report

In general the common structure of a written scientific report should be followed. You are free to do useful changes and define your own chapter distribution, but with the common structure, the following build-up of the report is meant:

Introduction
Background
Method
Results
Discussion
Conclusions
References
Appendices

To make it easy for readers to follow your critical analysis, it is preferred that you have separate chapters for results and for discussion. In the ‘results’ part present your findings in clear figures, maps and tables such the reader can follow the reasoning in the discussion. The discussion must clarify the links to other research references that supports or conflicts your results.

A general writing advice is to start early with the writing process or at least think ahead how you would like to arrange your report. In general it is relatively easy to
compile information for writing up the methodology and background. The difficult part may be to select what to include and what not to include, and to achieve a fluent running text. It happens often that you have collected many ‘facts’ from literature in short paragraphs and that the text of your thesis is just a collection of those paragraphs without logical connection or any ‘storyline’. To prevent this type of problems you might have to re-write sections and rephrase the connections between paragraphs several times.

Similarly, a good starting point writing the results part is to define what figures and tables are needed to make the key points needed to answer the research questions. Then it is easier to write the results around the figures and tables. Thereafter you can write the discussion. When writing the results and discussion you may have to consult other literature again on what is written on the results you found. This helps to specify better the content of the background part and methodology. In the end you write the introduction and conclusions. By writing those parts last, you can actually write them such that they shape a streamlined story together with your results.

It is common that a final report is missing a clear structure, while the final oral presentation by the student is much structured and giving a clear overview of the question, methods, results and discussion to conclusions. An advice might therefore be to prepare an oral presentation of your study early (possibly presenting it for some fellow students) before you sit down for the writing of the final version. This may help finding the focus needed to structure your text.

Introduction

The introduction should capture the readers’ interest and frame the question or hypotheses of the work. It should briefly introduce the field and what is known from before, but more importantly it must define a research problem that remains to be resolved. The introduction must have a logical line of reasoning (based on scientific references) that naturally leads to the aim. It should clearly indicate how the project has potential to create new important scientific knowledge by filling in an existing knowledge gap.

Background

The background puts the study in a wider perspective and gives a summary or ‘state of the art’ of the actual question. This section typically represents a literature overview as basis to the problem and posed questions. Theory behind the methods that are used in the research field should also be included. Often you can connect back to the theoretical background again in the methods and discussion parts of the thesis.

In other words, every thesis is expected to have a short literature review as part of this background section. Some students wish to keep a literature review in the results section of the thesis, but this is generally not recommended (unless the review clearly encompasses a highly systematic quantitative and/or qualitative analysis). If the whole thesis is centered around a literature review, there is a risk of producing a textbook-style report that does not meet the expectation on a master’s thesis in a science subject, i.e. to use the scientific method to test ideas with data and scientific methods.
The general rule is to keep the literature review to the background, and to focus the results completely on analysis – not on compiling overview texts.

**Methodology**

Here you present the applied methods for the collection of data, the analysis, and e.g. the study area. You motivate limitations in scope and assumptions invoked. Justify why the selected methods represent the most efficient way of resolving the problem and reaching the aim. Use references to methods, as much as possible. Methods must have a scientific basis – this in principle applies also to qualitative methods such as analyses of texts and interview data. Explain how the selected methods makes it possible to test the idea (research question, hypothesis) with scientific credibility.

If you plan to use methods that typically not used in science subjects, e.g. methods from arts and humanities, then discuss such choices carefully with the supervisor. In the end, a thesis in a science subject will be judged from its merits applying the scientific method. Combining methods from human, natural and engineering sciences is often a fruitful and even recommended approach to geography studies. However, if the analysis is completely based on e.g. hermeneutics without explicit application of the scientific method, then there is a risk that the exam committee will face problems with evaluating the thesis as a science subject thesis. Similarly, a technical engineering-focused thesis needs to apply the scientific method by testing ideas in a systematic manner.

**Discussion**

This is often the most difficult part of the thesis. Here you put your results in perspective of similar results of others. Can you support your results and conclusions in the light of previous findings and knowledge? Is your methodology robust to confirm your findings? Compare your study with other studies in the field. Use recent literature if available and show that you obtained a deep knowledge on the subject by discussing your results in comparison with other peer reviewed studies.

**Conclusions**

A characteristic of the conclusions is that the questions and problem formulation given in the introduction are answered. Refer here back to the initial research question and explain if you are able to answer that question. No new material (or references) is presented in the conclusions. Note that the conclusion section should not summarize the whole thesis or introduce new ideas. Summaries and outlooks can be presented elsewhere in the thesis.

**References**

On this course we recommend applying the reference system used by the journal *Ambio*. The format is clear, complete and has rules for how different sources of information and literature should be dealt with. In appendix C an example of the referencing and listing is given. On the course homepage the complete instructions for the format are given (see ‘references handling’ on page 4). The reason for including
the whole instructions is to show an example of writing rules for a journal. The part on general style issues is also useful for your writing.

References used in the report must be listed in a single reference list. Note that each publication, internet-based information source and possible oral information you refer to in your thesis should be given in the list. Do not separate your references into different lists. Avoid listing any reference that you do not refer to it in the running text of your document.

Appendices

Your thesis should be easy to read and clearly structured. Therefore you should consider appendices for presenting relevant information which is too lengthy for presenting in the main text. As with all figures and tables you should refer somewhere in the text to the appendices, to inform the reader which information can be found in the appendix. To add information in appendix without any reference in the text is not useful. Appendices may be used beyond the 50-page thesis limit, but please use with caution (only when really needed).

4.5 Instructions for the layout of the report

Although there is space for a personal touch on your thesis, we would like you to keep a certain standard. All reports have a common and recognizable layout and you should use the standard template for the front cover page. It is important to keep in mind that the report will be printed double-sided, so check carefully the page numbering, locations of figures and empty pages. Empty pages on even-numbered pages are OK, not on uneven pages! Note that when you open a book/report the uneven number is on the right side and the even on the left side of the open book. It is also recommended to place the page numbers in the center at the bottom of the page. Take care that the first section, Introduction, begins on an odd-number page (recommended number 1) and thus on the right sided page of the open report.

Although your report will be published digital in pdf format and thus probably read most ‘on screen’, it is still recommended to prepare the publication suited for a printed version. There is a consensus that font with a ‘foot’, ‘Serif’ is more suitable for printed text, while text for ‘screens’ are more often without a foot, ‘Sans Serif’. By default, use the serif font times new roman, size 12 and a line spacing of ca 1.3 (1-1.5 range is ok).

After the front cover/title page a second title page is included. The layout of both pages is shown in the appendix and should be followed. On the second title page the affiliation of all supervisors should be given. Photo credit for possible front page image may be inserted, as needed. Information on course and examiners is given on the backside of the front page.

After this second title page you add:
- Acknowledgements, when relevant. Acknowledge possible funding, contributions and support persons. It is highly recommended to keep this section relevant and clear, although there is no rule against acknowledging gods, saints, ‘mom and dad’ etc.
- English abstract
- Second abstract in another language. If your mother language is Swedish you should give here the Swedish abstract. If you have performed your study in another country or is focused on a particular country you could chose to give here a summary in the language of that country if you are able to do that.

- Table of contents
- Possibly a list of abbreviations, list of table and figures, but this is not necessary.
- Chapter 1: introduction. This page should start on an uneven page number on the right side of your open report. It is preferred that here your report start with page number 1. You can use another type of numbering for the introducing pages.

One of the most common format mistakes is to put too little information in the captions to tables and figures. Although it may appear repetitive, please include information about where the data come from, when it has been collected, where it has been collected, how many observations that were made, explanations to statistics etc., as relevant. A figure or table should, together with its caption, work as a stand-alone unit, i.e., one should be able to display it separately, and still get the information through.

Tables should have consistent formatting throughout the thesis. It is typically redundant with coloration, shading and grid lines. Three horizontal lines are sufficient: one line above and below the first row with the column titles, respectively, and one horizontal one line at the end of the table. A table should be a matrix where with column headings on the first row and row titles in the first column. Contents in the table should match a certain row and column combination (compare with two axes in a biplot diagram). A suggestion to table formatting is given below.

<table>
<thead>
<tr>
<th>Rows (cases)</th>
<th>Column 1 (unit)</th>
<th>Column 2 (unit)</th>
<th>Column …n (unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row 1</td>
<td>value</td>
<td>value</td>
<td>value</td>
</tr>
<tr>
<td>Row 2</td>
<td>value</td>
<td>value</td>
<td>value</td>
</tr>
<tr>
<td>Row …n</td>
<td>value</td>
<td>value</td>
<td>value</td>
</tr>
</tbody>
</table>

Although it is possible to print in color, copying is still cheaper and therefore common in black and white. Therefore, it is recommended to use black and white/grey as much as possible when colors are not filling a clear function. When you do use colors try to use colors which are also descendible in the grayscales. Limit unnecessary colors and take care that the text and pictures in gray/black/white are real black on white with other colors removed. That said, to have pictures, figures and maps in color is not a problem when the color serves its purpose, but often useful.

The document will be printed at least once at the department and made available in the library. Please take care that the report file contains the report in its final layout with correct page numbering and is print-ready. Note again that the report will be printed double-sided so put empty pages there where needed. The file that you upload to LUP for final publication should be the print-ready version.

National evaluation

All theses may be subject to usage by the national evaluation on the quality of the education program. This means that your report can be selected and evaluated by an
evaluation board. For this purpose the reports needs to be made ‘anonymous’. Therefore please do not put your name in the heading of each page. This can it make rather difficult to remove your name from the report for the evaluation.

The front page

The report should have the standard front page. You are however free to choose a picture for the front page. You can download the front page as a word document from the course homepage. Use the English version ‘FrontpageExj.doc when you wrote you thesis in English. The version ‘FramsidanExj.doc’ is for Swedish reports. On the front page you have to fill in the report number, the title and your name and check if the year of publication is correct. Do not change the layout. If you would like to have a picture on the front page, keep a high resolution of at least 300 dpi.

On the backside of the front page you can give on the top of the page the citation of your thesis:

Authors name (20xx). Title of thesis (English and Swedish)
Master degree thesis, 30 credits in Subject of degree
Department of Earth and Ecosystem Sciences, Physical Geography and Ecosystem Science, Lund University.

Here you should also give information which period you were registered on the course. The official course period is sufficient, not the total time. Finally a short disclaimer is added to the text.

The title page

Also for the second title page we use a common layout, included in the file that you download. This is the page on the right side of your thesis when you open the front page. On this page you repeat the title and your name, but add here that it concerns a master thesis of 30 credits for a degree in any of the three master degrees. Here you add also the name and affiliation of your supervisors and examiners. Affiliation is the institute and university or organization, not the physical address. Example of this page is given in appendix E. The three degree subjects are at the moment: Physical Geography and Ecosystem Analysis; Geomatics; Atmospheric Sciences & Biogeochemical Cycles.

The phrasing of the title may seem trivial, but to avoid time delays in the eventual publication of your theses, it is recommended that you:

- Spell out all abbreviations, if not (very) common acronyms such as DNA, HIV, NASA, US, UK, EU and WTO
- Use normal sentence case, typical for academic publications – do not capitalize each word
- Use a single sentence only, never two or more sentences, but the sentence can have two parts with ‘-‘, ‘:’ or ‘;’ in between
- Not use titles longer than ca 12 words. Title should be short and informative. Initial words like ‘A study about’ should be deleted.
- Avoid Google translate to go from English to Swedish or vice versa
4.6 ’Green light’ for your master thesis seminar

When you have completed the thesis your supervisor will give the OK for the master thesis seminar and examination. It is possible that your supervisor does not approve your work and would like to leave the decision for approval to the exam committee, but in most cases the supervisor considers the work sufficient for presenting.

It is required to give the exam committee and the opponent 1.5-2 weeks to read your work (exact deadline for submission is announced by course coordinator). You have been working several months towards the final results and it is important that the exam committee has time to going through your work carefully.

You have to submit your thesis to the course responsible through Urkund. In general this would be before a certain date so that the master thesis seminars of all other master thesis students in the same term can organized together in a short period of time at the very end of the academic semester.

4.7 Submission of your report to the course coordinator through Urkund

All file submissions to course coordinator (project plan, half-time report, thesis) will go through the program ‘Urkund’, which is a tool used by the University of Lund helping detecting plagiarism. By sending it to Urkund your thesis will also in the future be part of the database and other’s work can be compared to your work.

More information about ‘Urkund’ can be found on their homepage:
http://www.urkund.se/ (this link is in Swedish)
http://www.urkund.com/en/ (in English)

Thus, also the final thesis is submitted to Urkund before examination. Submission is done by sending your report in Word or pdf format as an attachment to the email address given below. Submission in Word file makes it possible for the exam committee to comment directly in the thesis document, if they wish. However, most exam committees prefer to write separate review reports when they provide feedback, so submitting in pdf is normally not a problem.

Take care that your name and the course code NGEM01 are in the filename, eg. Firstname_Lastname_NGEM01.docx. Instead of extension ‘docx’ it can be another extension depending on the format. The subject line of the email should have the text: [NGEM01] including the brackets.

The email address where you have to send your report is
Martin.Berggren.lu@analys.urkund.se

The course coordinator will receive both your report as well as the results of the scan, and will take care that the report is also forwarded to your supervisor, the exam committee and the opponent. At this time the date of your seminar should be known, or at least being discussed and hopefully within two weeks from submission.

Always use the same email address when submitting files. If you change, the system will consider that you are plagiarizing ‘yourself’ (your other email identity).
5. The final part: seminar, examination, publication and course evaluation

5.1 Presentation, defending and evaluating in the master thesis seminar

To present at a seminar

The oral presentation of your work is an important part of the master thesis evaluation. Officially you cannot receive a ‘pass’ for the course if you do not receive a pass for the oral presentation. In the evaluation form the requirements of a good oral presentation are described as follow:

In the oral presentation, it should be clearly indicated what the project is about. The talk should be adapted to the target audience so that interest in the research problem is sparked and the speaker should have contact with the audience. The presentation should have a clear structure, the subject matter should be correct and visual material should be legible and adapted to the presentation. The presentation must be kept within the timeframe. The speaker should be able to answer questions and discuss the results.

Your presentation is allowed to be 20-30 minutes. Adapt the number of slides to this timeframe. Prepare your presentation for a more general audience who did not read your thesis. This does not mean that you cannot present more deep-going results, but take care that you keep the attention of all persons in the room and not only the exam-committee.

Make sure that your slides are readable, and without too much text. A few keywords and your spoken words are better than using large text sections on the slides. Ensure that figures and maps are readable from a certain distance. If you have to present more dense information, like detailed maps or tables, help the audience by emphasizing the relevant parts from the information that you present. Do not be hesitant about including a few key references to literature in the presentation. The use of references demonstrates that your research is genuine and academic.

Details on how to present can be part of one of the seminars during the master thesis course, where you will receive some general tips.

To be opponent

At the department of Physical Geography and Ecosystem Science, the tradition is that another students acts as opponent for the student defending the master thesis. It is mandatory to take the role as opponent at least once during your education. The course manager is taking care that besides an exam committee, an opponent is appointed to the public seminar and informed about their task.

Below follows general guidelines in 6 points for being an opponent to a thesis, and a master’s thesis in general.
1) Why is an opponent required?
   - To start an interesting discussion about the subject and the study.
   - The thesis should get a thorough review.
   - Set the study in a larger context.
   - To point out parts that did not fit into the thesis, but still are interesting for the study.
   - To sort out possible obscure parts of the thesis, that should be more clearly written.

2) Why should the opponent be another master student?
   - The master student should show that he/she knows how to review an academic thesis and knows the requirements of an academic work.
   - The master student should show that he/she has basic skills to comprehend a master thesis, even though it is not written in his/her own field.
   - The master student should be able to set the work in larger context.

3) Guidelines for preparation
   Estimate about one weeks work to:
   - learn about the subject
   - read the thesis
   - check the references
   - prepare the opponent work.

4) Which parts are most interesting for the seminar?
   Prepare a summary of the work, but where you could continuously discuss interesting topics with the author. Everything that could trigger an interesting discussion with the author is relevant. To your help you could look at the points below. You could also ask the author to explain any difficulties he/she had during the study (such as bad equipment), but which were not mentioned in the report.

"Criteria for Master Thesis"

* Is the purpose clear?
* Has the purpose been thoroughly investigated and reported?
* Does the thesis contain any conclusions?
* Are the conclusions drawn from the report? From theory, result and/or analyses?
* Is the chosen method appropriately motivated and described?
* Is the work set in a larger context – are the references to related work?
* Is the report well structured?
* Is the language adequate?
* Do figures and illustrations help the reader to understand the report?

It is important that you motivate in which way all of the points above are met.
5) Which parts are not interesting for the seminar?
   - Details. They are only interesting if they are part of consistent critics of the thesis.
   - Judgments without any substance. This implies that you have to motivate what is
good/bad in the report.
   - Personal excuses. The thesis should be on that level that all master students should
be able to read it, even though it is not in their specific field.

6) If you cannot find interesting topics to discuss:
   - Contact the leader of the seminar or the teacher that is responsible for the master
thesis course.
   - Contact the author – are there any topics he/she would like to focus on?
   - Contact the persons in the review committee – they should have ideas and
proposals.

Write for yourself a short listing of questions and conclusions on the work by having
the points given above and also the following points taken into account:

- Title of the work: is it appropriate, is it attractive
- Problem formulation, aims and/or hypothesis. Are those clearly stated?
- Methodology: does the report describe the methodology so that the experiment can
be repeated?
- Results: are the results presented clearly in figures and tables, but also described
sufficiently, can they be trusted?
- Discussion: are the results put into relation to other studies?
- Conclusions: is the problem-question answered?
- In general: overall view and report layout

5.2 Examination of your project

The exam committee is present at your seminar. It is not formally required that your
supervisor is present with the seminar, but your work will not be graded without
consulting your supervisor(s) who provide input regarding the evaluation criteria. The
exam committee consists of two persons: one examiner and one additional member.
The examiner is always a teacher or researcher of the department with a PhD degree.
It is the examiner who has the final responsibility for the grade given. A list with
grading criteria is used as support for an evaluated and common grading, given in the
Appendix B. A general rule is that you have to have passed the oral presentation and
written presentation for an overall pass. The grading criteria represents a tool for the
exam-committee as a help towards a comparable, fair and transparent grading.

The grade is decided during a short meeting of the exam committee and supervisor(s)
directly after your seminar. If this is not possible to have this meeting directly
afterwards, the grading might be postponed to the next day.

5.3 Finalizing and publishing the thesis

In short the publication of your thesis involves the following steps:
- finalizing the very final version of your thesis following the layout model given
above in section 4.4. Include the comments you received from the examiners,
opponent or even your supervisor, and summarize the corrections you did for the final
version in a separate file. With the seminar you should have received information if the examiners want to approve the revised version with corrections. If so take care that you have a clear listing of the comments.
- write two summaries in separate files: a scientific and a popular written
- finalizing the 5 needed files including the .pdf versions of the report and summaries
- submit the files to the course coordinator: if all files are correct you will receive the report series number for your report
- Add this number to your thesis front page and summaries, correct the final lay-out comments. Submit again to course coordinator
- After the OK, you can submit to the Lund University Publication database (LUP) and the course coordinator will print one copy for the library
- Submission of the .pdf version as main document as well as the summaries to LUP. When you submit, staff of the Geolibrary is automatically informed that you submitted a publication.
- Staff from the Geolibrary will check the reference information of your submitted report and check if the submission worked out well
- the library staff will inform course coordinator and student administration about final publishing in LUP
- You fill in the evaluation form of the course in Survey & Report. Login will be mailed to you after your thesis seminar.
- Student administration is putting your grade into LADOK

The submission to LUP is also described in a separate paper. The link to this paper is given in Appendix H.

Adding the final corrections

After your seminar and assuming that you have passed the examination you will have time to finalize your report for publication. Usually you will have received comments from your opponent and the exam committee and you should take care of those before publication. This gives you the opportunity to improve your report, but it will not affect the grade you received. In general you will get two weeks for adding the improvements. **As long as you did not deliver the final report, the grade will not be put into LADOK, which is needed to finish the course and apply for the degree-certificate.** If no final publication-ready version of your thesis is delivered to the course coordinator, no grade is given in LADOK, and finally even set to ‘Fail’, as you did not finish the course.

In general it is recommended to always improve your report with the comments you received. However, if you have a grade of 8 points or higher on the written report in the grading criteria, it is not really necessary if the comments are not obvious. If you received 4 or lower and thus actually received a fail, you have to improve your report substantially with the comments given and get re-examined in order to pass.

To make it easier to see the corrections and prevent re-reading of your report, you should deliver a listing of how you included the given comments together with the final version of your thesis. This listing is comparable with the listing an author has to give when he/she informs referees of a scientific article how they took care of all given comments. List the most important comments and summarize how you dealt with them.
Submitting the final version to the course coordinator
(always submit all files to Martin.Berggren.lu@analys.urkund.se)

You will have to deliver the following 5 files to the course coordinator:
1) Your final report completed as described above in PDF-format
2) Your final report completed as described above in Word-format (open office or LaTex is also accepted)
3) One scientific abstract in English following the layout model given by the Faculty of Science (see appendix F)
4) One popular written summary also following the layout model.
5) One file where you describe how you dealt with the (main) comments of the exam committee.

The popular written summary should be in Swedish for Swedish students, but in English for international students. For description of the layout model and other specific instruction see Appendix F and G.

Keywords summary

Both summaries should have at least 5 keywords each which describe your work. The first keywords should be ‘Geography’ or ‘Physical Geography’ and ‘Ecosystem Analysis’. Note that the summary can be used by a reader to search for your thesis. So if you change the title in the popular written summary to a more popular title, add the official title at the end of the summary. The same is valid for giving the official title on both summaries depending on the language.

What kind of summaries to be submitted with the report?

Regarding the summaries there could be confusion about whether or not you can use the summary in the thesis as the ‘scientific summary’ submitted separately to LUP. In your thesis you should have at least one summary. This summary (abstract) in the thesis does not need to follow the exact layout given for the two external summaries. If you wrote your report in English, then you should have an English written summary in your report. If you wrote your report in Swedish, than you should give both a Swedish summary and an English summary. You can add more summaries in any language of relevance (eg if you mother tongue is different than English or Swedish or if you have written your report on a subject in a specific geographical region with another language). The content of those summaries must be the same, however.

Then in addition you should have the two external summaries as described above: the scientific and popular, which both follow the layout model given by the Faculty of Science. You can choose to have those summaries inside your thesis instead, but you should then adapt the layout.

NOTE: it will be the pdf version that is published, both digital in LUP, as well as printed version in the library. Take care that this pdf version is correct and print ready!!
Publication in LUP

Upload of your thesis is to LUP is compulsory. LUP is not only used to publish your thesis, but it is also used as archive and having your thesis in LUP is the evidence that it exists. Formally it is expected that you publish your thesis by giving open access to the full text in LUP, but you have the copy right. Thus it is not compulsory to give access to the full text, although very unusual. Publication of your thesis in LUP is thus expected, and if you do not want to publish your thesis in LUP you have to make this clear to the course coordinator. In general we consider the moment where you publish your thesis in LUP as the final step in the course, before the grading is put into LADOK. If you do not upload the thesis to LUP there will not be any official version for the archive and do we consider the course as not finished. If the thesis is still not uploaded to LUP after some time, we have to fill in a ‘Fail’ in LADOK.

Thus you have to upload a print-ready final version of your thesis to LUP for the archive. With upload to LUP the title and summaries will be open for the public, and thus published, but you can decide if you want to make the full text version open for publication. You should however motivate why you want to limit the access, as it is not expected. We ask you to upload the thesis yourself to LUP. With that you agree with the publication. In cases where you ask the course coordinator or the library to upload your thesis you should give permission to do so.

After the OK from the course coordinator regarding the lay-out, you can publish your report and the two external summaries in LUP. This should be the pdf versions.

It is strongly recommended that the thesis is published as just a single file. However, it is technically possible to add more documents to your publication in LUP, e.g. extremely large appendices or a separate article (e.g. a popular article) written on your thesis. Under ‘Files&Acesss’, choose ‘Related Material -> Add new ->’, and in the scroll down menu you choose the type; e.g. Related object is popular science. Then you can either add the material by an URL or upload the material.

When you have a complete pdf version of your essay that is approved by the course coordinator, including the cover pages, you must register your thesis in LUP at: [https://lup.lub.lu.se/luur](https://lup.lub.lu.se/luur)

and follow the instructions given at: [https://lup.lub.lu.se/lupInfo?func=loadTemplate&template=0registerinLUP](https://lup.lub.lu.se/lupInfo?func=loadTemplate&template=0registerinLUP)

(Swedish and English version).

When your thesis is registered and approved it will be available and searchable at: [https://lup.lub.lu.se/student-papers/search/](https://lup.lub.lu.se/student-papers/search/)

When you register your thesis in LUP-student papers the following information needs to be available and eventually entered:
- Course code and the Term you were registered on the course. Those are already in the LUP registration form where you have to choose them.
- Author (enter your name, then select author and confirm)
- Title
- Abstract (all abstracts, choose the +sign for additional fields)
- Subject = Earth and Environmental Sciences
- Keywords (five)
- Language
- Student paper type (= NGNM01, master’s degree, Two years/masteruppsats 30 hp)
- Publication year
- Publication/series: Student thesis series INES (eller Examensarbete INES)
- Report number
- Department/Affiliation: Department of Physical Geography and Ecosystem Science
- Supervisor (at LU and confirm supervisor. If appropriate add also an external supervisor
- Please also enter external supervisor and his/her affiliation in the tab Additional info. If your study has been supported by a funder, please also add this in the tab Additional info.

Upload main document: the pdf-file of the thesis. You can upload the pdf versions of the two summaries under related material. It is important to upload the main thesis pdf file under main document otherwise there will be no link from the title of your thesis in LUP to the pdf file. **Do not forget to click on ‘Submit for registration’ when you are ready.**

One hard copy of your degree thesis is handed in to Geobiblioteket (the Geolibrary) by the course coordinator, and one additional copy is archived at the department. If you want binding of private copies, this can be offered for free if you bring your own A4-printed thesis copies to the course coordinator for binding.

**5.4 Policy of thesis with time-limited publication**

In general a (Master’s) thesis is published open to the public. There are however situations where the open access can be limited for a period of time. The most common situation is that the thesis is using data that also is in use by a PhD student, researcher or by a company, who want to publish the unique data first in another publication. Alternatively, you as a student want to wait with publishing your thesis and publish a scientific article first. In those cases the open access of to the thesis can be delayed with maximum a year. During that time the data can be published in another official publication. You have to inform the course responsible that you want to make use of this option and you can choose in LUP the option (see below) to wait with the publication on internet. It is however expected that a hardcopy of your thesis is available for reading in the library.

In case you as a student want to delay the publication yourself you have to upload the thesis to LUP and can choose the date where after your thesis will be open in LUP. The maximum period is a year. If prolongation is needed you have to ask just before the year has passed.

Another example where the thesis is not published with open access is when the thesis is using data or presenting results that a company would like to keep unpublished. In those cases it should be agreed already in an early stage what and how the report will be written. It is also possible that the exam committee has access to the all material, while the report is limited to what is agreed on. Until today this kind of publications
has not been necessary at our department. It is however good to know about this when you are looking for a subject.

LUP offers two possibilities apart from the abovementioned time limited embargo, to restrict accessibility to a thesis: 1) the thesis is only accessible on the Lund University Intranet; 2) the thesis is only accessible to the author and staff with administrator level accreditation in LUP, the Reviewers and top level administrators. It is however important to keep in mind that the name of the student, the title of the thesis and the abstract and popular science summary still are generally available and possible to search for in the database. The functionality of LUP does not permit registering a thesis and keeping it completely invisible on the Internet, directly via LUP or from external search engines such as e.g. Google.

5.5 What happens if you did not pass the examination

It is up to the exam committee to decide if your work is sufficient. The rule is then you should have a pass on both your oral presentation and written presentation. When the written report is not sufficient you can be allowed to present anyway and get your oral presentation graded. This can be in case the student has limited time to stay in Sweden and that the correction of the work has to be performed after the student left Sweden. Another reason can be that the examiners want to use the seminar to evaluate your work in more detail and give better comments for the written report.

In general when the work is not approved the student is given extra time to substantially re-work the thesis in order reach the ‘pass’ Level. It can mean that you continue with your supervisor, but it possible to change supervisor. A new committee meeting will happen when substantial improvements have been made. The thesis is treated as a new thesis. If the oral presentation did not pass, a new seminar is required (very unusual, but a possible scenario). If you get the grade ‘Fail’ twice, you have the right to ask for (and get) a new exam committee.

5.4 Course evaluation

As in any other course your opinion about the master thesis course is appreciated. An anonymous evaluation form is available through the Survey & Report evaluation system and you will receive the internet address from the course responsible after you uploaded the thesis to LUP by email. Take some time to fill in all questions in the survey as it is not possible to save and come back later. A part of the survey is on the whole master program as the thesis is usually the last course you do within the master program.

5.5 Completing the degree, applying for the certificate (diploma)

Usually the thesis is the final part of your master program and we strongly recommend you to apply for your degree certificate (diploma) as soon as you fulfill the requirements for the degree (finishing the master degree project). As soon as your grade has been registered in LADOK after you delivered all needed files to LUP, and you have the needed 120 credits in passed courses, you can apply for the degree certificate from the Office of Examination (Lund University, Office Lodge, Paradise
Street 5C), also called the degree Office. For the documents and information in Swedish see www.lu.se/examen or in English: http://www.lunduniversity.lu.se/current-students/academic-matters-support/apply-for-your-degree-certificate

You have access to the application through the so called ‘Student Portal’, using your STiL identity. More information is given on the above homepage.

Application through the student portal is preferred and easier as long as your STiL is still active. There is an alternative way to request your certificate. You can just fill in the form at this link:


The filled form can be scanned and e-mailed to: examen@stu.lu.se

If you cannot scan, you send them to the address given on the form. It can take several weeks (depending on the work load of the Office of Examination) before you will have your certificate send home. In many cases it can take up to 2 months.

Note that you have to fill in the name of the master program. This is the program you are registered for, which is one of the following:
- Physical Geography and Ecosystem Analysis
- Geomatics
- Atmospheric Sciences & Biogeochemical Cycles

Two other master programs, which are also given at the department, iGEON and GEM have other rules regarding the master thesis and only follow parts of this compendium for the master thesis project.

**What will be the date of your examination?**

The date that is given as the final date of your master program will be the date that the grade of the last course is registered in LADOK. It is possible to wait with your application for the master certificate. You could complete another course and exchange a course in your master degree, but for many there is no reason to wait. Note that in LADOK and presumably also on the certificate two dates are given: the date of the registration of the master degree in LADOK and the date of finishing the master program. The last is the date when the grade for the last course was registered. The grade for the course NGEM01 is registered with the date that you publish your thesis in LUP. For many this will be the final date of your registration as student.
6. Literature useful for your thesis work

In Swedish:


Maria Björklund och Ulf Paulsson, Seminarieboken – att skriva, presentera och opponera
ISBN 91-44-04125-X. Art nr 8093
(finns också i geobibliotek)

Karin Widerberg, Vetenskapligt skrivande – kreativa genväger
ISBN 91-44-03040-1. Art nr. 31389

Judith Bell, Introduktion till forskningsmetod
Att välja ämne, formulera målsättningen, analyser och rapportera
ISBN 9144013957. Artnr: 3702

Ulf Bjereld, m.fl., Varför vetenskap? Om vikten av problem och teori i forskningsprocessen
ISBN 9144041349 Artnr: 6727

Christer Bjurwill, A, B, C och D, Vägledning för studenter som skriver akademiska uppsatser.
ISBN 9144015747 Artnr: 7450

Om kvalitativa och kvantitativa metoder
ISBN 9144002114 Artnr: 3174

Joakim Molander, Vetenskapsteoretiska grunder.
Historia och begrepp
ISBN 9144026900 Artnr: 31188

Jan Trost, Att vara opponent
ISBN 9144024673 Artnr: 31117


Andra praktiska böcker som vara till hjälp i ditt arbete, är:
Bengt Hemlin, Sammanfattningsvis skulle jag vilja säga. AB ESPER Förlag Stockholm, 1989. Om retorik och presentation

Barbro Fällman. Tala & engagera, populär presentationsteknik Studentlitteratur ISBN 9144022921

In English:


Some literature available from the course homepage:

Sheppard, Helen. Hints on Layout and Style for Writers of Dissertations and Theses at the Faculties of Science, Engineering and Medicine, Lund University File: Styleguide. This text on layout of the text is actually written for PhD dissertation, but contains good general rules for the layout.

A paper on what is the best way to present data. It shows a lot of useful tips, and also points out that you should make sure your graphs are safe to read for people with colour-blindness (8% of your male audience). More reading on the topic, specific for climate science, can be found at http://betterfigures.org

Appendices

Appendix A: Course curriculum
Appendix B-I: Grading criteria with examination
Appendix C: Author instructions for Ambio
Appendix D: Layout model front cover page
Appendix E: Layout model title page
Appendix F: Layout model scientific abstract
Appendix G: Layout model popular written summary
Appendix H: Instructions uploading to LUP
Appendix I: Legal settings with publication
Appendix A
Course curriculum Swedish

NGEM01

Kursplan för Naturgeografi och ekosystemanalys:
Examensarbete – masterexamen 30 högskolepoäng,
Physical Geography and Ecosystem Analysis:
Master's Degree Project 30 ECTS credits

1. Grundläggande uppgifter

2. Allmänna uppgifter

3. Lärandemål
Efter avslutad kurs skall den studerande ha förvärvat förmåga att:

• tillämpa och sammanställa kunskaper och färdigheter förvärvade inom kursdelen av magisterprogrammet i naturgeografi och ekosystemanalys,
• analysera, behandla och lösa problem inom ämnet naturgeografi och ekosystemanalys eller tillämpningar av detsamma,
• värdera de metoder som studeras och/eller utvecklas,
• tillämpa vetenskaplig metodik,
• utforma och arbeta efter en tidsplan,
• dokumentera och presentera resultatet.

4. Kursinnehåll


I examensarbetet ingår
• en skriftlig rapport på svenska eller engelska,
• en presentation vid ett offentligt seminarium.

Rapporten skall vara tillgänglig i en version som medger granskning minst en vecka före seminariet. Institutionen skall arkivera rapporten.

5. Undervisning och examination
Om arbetet genomförs tillsammans med en annan studerande skall respektive studerandes ansvarsområde klart definieras och resultera i en rapport för varje studerande.

Redovisning sker i form av en vetenskaplig rapport skriven på svenska eller engelska varvid regler för internationell publicering tillämpas. Rapporten ska kompletteras med ett vetenskapligt ”abstract”
skrivet på svenska och engelska samt en sida innehållande en svensk sammanfattning riktad till en bredare målgrupp.

Examensarbetet presenteras och ventileras vid ett uppsatsseminarium med opposition av en kurskamrat eller av en ledamot i betygsnämnden.

6. Betyg
Betygsgraderna på kursen är väl godkänd, godkänd och underkänd. Betyg sätts av en betygsnämnd om två personer som också närvarar vid den muntliga presentationen. Handledaren bisitter betygsnämnden men ingår ej i denna.

För godkänt betyg på hela kursen krävs att både rapporten och presentationen är godkända. Slutbetyget avgörs genom en sammanvägning av resultaten på dessa moment. För väl godkänt får arbetet inte överskrida tidsplanen med mer än 20 %.

7. Förkunskapskrav
För tillträde till kursen krävs 225 högskolepoäng varav 45 högskolepoäng ska utgöras av studier på avancerad nivå i naturgeografi och ekosystemanalys.

8. Litteratur
Litteratursökning sker under kursens gång.

9. Övriga anvisningar
Se vidare Regler och rekommendationer för examensarbeten vid naturvetenskapliga fakulteten.
Appendix A
Course syllabus English

NGEM01

Physical Geography and Ecosystem Analysis: Master’s Degree Project
30 ECTS credits

1. Basic information
Determined by the education committee of the Faculty of Science 2007-03-01. The course outline comes into force 2007-07-01. The course is at an advanced level.

2. General information
The course forms part of the main subject area of Physical Geography and Ecosystem Analysis in the Faculty of Science. The course is a compulsory course at advanced level forming part of a Master of Science degree in Physical Geography and Ecosystem Analysis. The course is also given as a free-standing course. The course can be given in English.

3. Teaching aims
After completing the course the student will have acquired the ability to:
• apply and compile knowledge and skills acquired in the course section of the Master’s programme in physical geography and ecosystem analysis
• analyse, process and solve problems within the subject area of physical geography and ecosystem analysis or its applications
• evaluate the methods that are studied and/or developed
• apply scientific methods
• design and work according to a time schedule
• document and present results.

4. Course content
The degree project is a piece of independent work that is carried out in the form of a project. The student chooses a subject in consultation with a supervisor. The subject falls preferably into one of the research projects being conducted at the department. The degree project can also be carried out as a collaborative project with external departments, universities, organisations or companies.

The student will complete a limited and well delineated assignment. The problem, related to current subject matter and problems, will be worked on within the framework of the project. The work includes laboratory work and/or field surveys and studies of the literature. Attendance at seminars and guest lectures may constitute compulsory elements.

Included in the degree project are
• a written report in Swedish or English
• a presentation at a public seminar.

The report will be available in a version that is able to be reviewed at least one week before the seminar. The department will file the report.

5. Teaching and assessment
If the project is carried out along with another student the area of
responsibility of each student will be clearly defined and will result in a report for each student. Reporting takes the form of a scientific report written in Swedish or English to which the rules for international publication are applied. The report will be completed with a scientific “abstract” written in Swedish and English along with one page containing a Swedish summary aimed at a wider target group. The degree project will be presented and debated at a thesis seminar with opposition from another course participant or from a member of the examining committee.

6. Grades
Grades for the course are pass with distinction, pass and fail. The grade is determined by an examining committee of two people who are also present at the oral presentation. The supervisor is present during the work of the examining committee but does not take part in this.

For a pass grade for the whole course, pass grades for both the report and the presentation are required. The final grade is determined by an aggregate of the results of these elements. For a pass with distinction grade the work must not exceed the time schedule by more than 20%.

7. Course prerequisites
225 ECTS credits are required for acceptance on to the course, of which 45 ECTS credits must be derived from studies in physical geography and ecosystem analysis at an advanced level.

8. Literature
Searches of the literature will be carried out over the duration of the course.

9. Additional directions
Refer to Rules and recommendations for degree projects in the Faculty of Science.
Appendix B

Grading criteria for Master degree projects (30 ECTS credits) in science subjects, Department of Physical Geography and Ecosystem Science

The grade is decided by the exam committee (examiner + committee member) in consultation with supervisor. Planning, implementation and reporting of the work is assessed according to the below criteria. The scientific results per se do not primarily form the basis for marking. If a student has spent more than 24 weeks of work on the project without a certified/documented leave, then the score must not exceed 37 points PASS.

**Planning**
(has the project been well defined and planned, and carried out on reasonable time? Note: a well-defined project has testable ideas that can be evaluated within time scope)

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td>None</td>
</tr>
<tr>
<td>1.</td>
<td>Poor</td>
</tr>
<tr>
<td>2.</td>
<td>Weak</td>
</tr>
<tr>
<td>3.</td>
<td>Good</td>
</tr>
<tr>
<td>4.</td>
<td>More than good</td>
</tr>
<tr>
<td>5.</td>
<td>Very good to excellent</td>
</tr>
<tr>
<td>6.</td>
<td>Outstanding</td>
</tr>
</tbody>
</table>

**Knowledge of the theoretical background**
(can the student frame and justify the research question(s), methodology and results in a scientific context? Note: adequate theoretical/scientific anchoring is needed also in applied projects)

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td>None</td>
</tr>
<tr>
<td>1.</td>
<td>Poor</td>
</tr>
<tr>
<td>2.</td>
<td>Weak</td>
</tr>
<tr>
<td>3.</td>
<td>Good</td>
</tr>
<tr>
<td>4.</td>
<td>More than good</td>
</tr>
<tr>
<td>5.</td>
<td>Very good to excellent</td>
</tr>
<tr>
<td>6.</td>
<td>Outstanding</td>
</tr>
</tbody>
</table>

**The ability to carry out the experiment/the theoretical assignment**
(was the student able to manage advanced-level techniques and methods well?)

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td>None</td>
</tr>
<tr>
<td>1.</td>
<td>Poor</td>
</tr>
<tr>
<td>2.</td>
<td>Weak</td>
</tr>
<tr>
<td>3.</td>
<td>Good</td>
</tr>
<tr>
<td>4.</td>
<td>More than good</td>
</tr>
<tr>
<td>5.</td>
<td>Very good to excellent</td>
</tr>
<tr>
<td>6.</td>
<td>Outstanding</td>
</tr>
</tbody>
</table>

**Interpretation and analysis of results**
(includes correct use of statistics, as relevant, and drawing inferences with scientific credibility)

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td>None</td>
</tr>
<tr>
<td>2.</td>
<td>Poor</td>
</tr>
<tr>
<td>4.</td>
<td>Weak</td>
</tr>
<tr>
<td>5.</td>
<td>Good</td>
</tr>
<tr>
<td>7.</td>
<td>More than good</td>
</tr>
<tr>
<td>9.</td>
<td>Excellent</td>
</tr>
<tr>
<td>10.</td>
<td>Outstanding</td>
</tr>
</tbody>
</table>

**Independence**
(student’s own contribution to development/refinement of project should be taken into account; not always same as “little use of supervision”)

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td>None</td>
</tr>
<tr>
<td>1.</td>
<td>Poor</td>
</tr>
<tr>
<td>2.</td>
<td>Weak</td>
</tr>
<tr>
<td>3.</td>
<td>Good</td>
</tr>
<tr>
<td>4.</td>
<td>More than good</td>
</tr>
<tr>
<td>5.</td>
<td>Very good to excellent</td>
</tr>
<tr>
<td>6.</td>
<td>Outstanding</td>
</tr>
</tbody>
</table>

**Presentation – oral reporting**
The oral presentation must clearly reflect what the project was about. It should be adapted to the target audience so that interest in the research problem is sparked, and the speaker should have contact with the audience. The presentation should have a clear structure, the subject matter should be correct and visual material should be legible and adapted to the presentation. The presentation must be kept within the timeframe. The speaker should be able to answer questions and discuss the results.

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td>No presentation</td>
</tr>
<tr>
<td>1.</td>
<td>Poor</td>
</tr>
<tr>
<td>2.</td>
<td>Weak</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Good = PASS</strong></td>
</tr>
<tr>
<td>4.</td>
<td>More than good</td>
</tr>
<tr>
<td>5.</td>
<td>Very good to excellent</td>
</tr>
<tr>
<td>6.</td>
<td>Outstanding</td>
</tr>
</tbody>
</table>
Presentation – written reporting
The written report should contain relevant testable ideas/hypotheses that are tested experimentally/empirically or theoretically. The introduction should place the research problem within a larger context. The presentation of background, the research problem and the results should be direct, clear and logical, and any statistical treatment should be relevant. Conclusions should have scientific credibility and must be well supported by the results. The discussion should place the results within a larger context, as well as evaluate any weaknesses in the study. Relevant literature including state-of-the-art research articles should be adequately cited and list of references should be correct. Figures and tables should be clear and understandable from the captions alone. The title should be appropriate and the summary understandable as stand-alone unit. Headings should give guidance to the reader. The text should catch the reader’s interest and the language should be clear.

Summary of above scores:

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning (0-6)</td>
<td></td>
</tr>
<tr>
<td>Theoretical comprehension (0-6)</td>
<td></td>
</tr>
<tr>
<td>Ability to carry out the experiment/theoretical assignment (0-6)</td>
<td></td>
</tr>
<tr>
<td>Interpretation and analysis of results (0-10)</td>
<td></td>
</tr>
<tr>
<td>Independence (0-6)</td>
<td></td>
</tr>
<tr>
<td><strong>Oral presentation (0-6; 3 = PASS)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Written presentation (0-10; 5 = PASS)</strong></td>
<td></td>
</tr>
</tbody>
</table>

Did both oral presentation and written report receive PASS ………..YES / NO (if NO, a score higher than 24 points must not be given)
Has the student spent >24 weeks of full-time without certified leave ………..YES / NO (if YES, a score higher than 37 points must not be given)

**Decision: ……………… out of 50 points (…..%), which gives the grade:**

1. Accept with typographical corrections
2. Accept with revisions, but no need for exam committee to follow up
3. Accept with revisions – annotated revised thesis and a document explaining the revisions must be sent back to the exam committee for a second check
4. Reject thesis, fail
Appendix C

The author instructions for Ambio are available as pdf file from the course homepage. Here an example is given:

References Ambio-style
In the text the references should look like this:
Books (Stern 2009)
Book sections (Schwartz and Billoski 1990)
Journal article (Akselsson et al. 2008)
Journal article (Faith and Walker 1996; Faith et al. 1996)
Journal article (Quigley and Harper 2006a, b; Faith and Walker 1996)
Reports (Bertills et al. 1995)
Thesis (Growcock 2005)
Web page (Molau and Molgaard 1996)

Reference list they should look like this:
Appendix D

Note. This is only a picture of the English version of the thesis front page to give the idea. The actual version might diver from this picture. If you have written your thesis in Swedish, a Swedish version is available with series title ‘Examenarbete INES’
Appendix E

Again, if you have written your thesis in Swedish, this page should be in Swedish

Title

Author name
Master thesis, 30 credits, in title degree*

Supervisor 1 name
Affiliation

Supervisor 2 name
Affiliation

Examiners:
Examiner 1, affiliation
Examiner 2, affiliation
Appendix F Scientific summary

Author's name

Title of your report

Lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph. Lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph. Lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph.

First paragraph, first paragraph, first paragraph, first paragraph, first paragraph, first paragraph. First paragraph, first paragraph, first paragraph, first paragraph, first paragraph. First paragraph, first paragraph, first paragraph, first paragraph, first paragraph, first paragraph. First paragraph, first paragraph, first paragraph, first paragraph, first paragraph, first paragraph. First paragraph, first paragraph, first paragraph, first paragraph, first paragraph, first paragraph. First paragraph, first paragraph, first paragraph, first paragraph, first paragraph. First paragraph, first paragraph, first paragraph, first paragraph, first paragraph.


Subtitle

Third paragraph, third paragraph, third paragraph, third paragraph, third paragraph, third paragraph, third paragraph, third paragraph, third paragraph. Third paragraph, third paragraph, third paragraph, third paragraph, third paragraph, third paragraph, third paragraph, third paragraph, third paragraph.

dec

Keywords: Physical Geography and Ecosystem analysis, + at least 4 other keywords

Advisor: First name Family name

Master degree project 30 credits in . . . *, 20XX

Department of Physical Geography and Ecosystem Science, Lund University. Student thesis series INES nr xx

*Subject of degree project: see Description of the course
Appendix G

How to write a popularized one-page summary of your degree project

• Make sure that the contents and language of the summary are suited to a wider circle of readers. Think of the reader as a person with a good all-round education, who is not an expert in your field.

• Make the title of the summary attractive and short (one line). Avoid expressions like ‘summary’ and ‘study’ in the title. If the title differs from your report title you should give the original title in the footnote of the summary.

• Begin with a general introduction where you give some background information about your project. This will help the reader understand the idea of your work.

• Describe the methods and techniques only briefly – unless the objective of the study is to test or develop a method. In that case, also make clear to the reader for what purpose the method can be used.

• Go into greater detail when describing your results, and how they can be applied.

• Write a summary that is easy to understand and enjoyable to read; remember that it is an advertisement for your degree project. Use as few technical terms as possible. Avoid all too long sentences with many subordinate clauses.

• Ask a friend (who is studying a different subject) to read and give honest comments on the first draft. Also ask your friend to correct the language. Rewrite and ask for new comments!

Layout model

Type-face: Times
Your name in the upper left corner, in bold type italics, 12 p
Centred title in bold type, Arial 14 p
Main text, 12 p
Blank line marks new paragraph
Subtitles in bold type
Latin names, and technical terms that are defined or explained, in italics
Information about advisor, department etc., 10 p
Advisor’s name in bold type
Illustration if relevant
Author’s name

Short and attractive title

Lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph. Lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph. Lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph, lead paragraph.

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Subtitle

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etc

Keywords: Physical Geography and Ecosystem analysis, + at least four other keywords

Advisor: First name Family name
Master degree project 30 credits in . . , 20XX
Department of Physical Geography and Ecosystem Science, Lund University. Student thesis series INES nr xx

*Subject of degree project: see Description of the course
Note: if you used a popular title for this summary that differs from the original title, you should give the original/official title in the subscript.
Appendix H
Upload to LUP

See separate document on homepage of the course NGEM01
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Appendix I

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