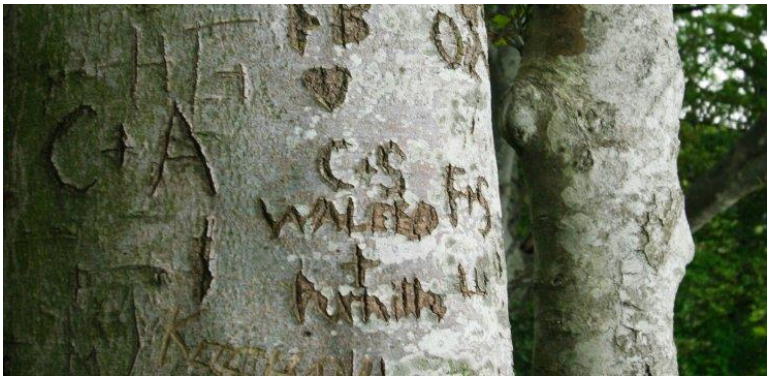
PEN-80812

BSc Thesis Forest and Nature Conservation

Academic Year 2022-2023

Contact persons
José van Paassen
Maaike de Jong
bscthesis.bbn@wur.nl



BSc thesis Forest and Nature Conservation PEN-80812

Language	Dutch or English
Credits	12 (~8 weeks)
Period	5 (afternoon) + 6 (first four weeks) or period 1-4
Exam	Final presentation sessions: Period 6: 8 and 9 June 2023
Contact persons	José van Paassen & Maaike de Jong bscthesis.bbn@wur.nl Lumen, building 100, room C.137
Lecturers	Staff from: Forest Ecology and Forest Management Group (FEM) Forest and Nature Conservation Policy Group (FNP) Plant Ecology and Nature Conservation Group (PEN) Wildlife Ecology and Conservation Group (WEC)
Examiners	Prof. dr. R.D. Sheil (FEM) Prof. dr. M. Pena Claros (FNP, interim) Prof. dr. ir. D. Kleijn (PEN) Prof. dr. ir. F. van Langevelde (WEC)
Secretariat	Petra Kloppenburg petra.kloppenburg@wur.nl 0317-483174 Lumen, building 100, room C.111

Table of Contents

1. General information on the BSc thesis 4
Profile of the course 4
Assumed prerequisite knowledge 4
Learning outcomes 4
Course materials 4
Educational activities 4
Topics, supervisors, thesis contract and workplace 5
Supervisors 5
BSc thesis contract 5
Topics 5
Workplace ..... **Error! Bookmark not defined.**
Assessment strategy 6
2. Content BSc thesis 7
Research proposal 7
Outline thesis report 8
Language 8
Report or paper? 8
Plagiarism 9
General outline thesis 9
3. Meetings BSc thesis 11
Plenary meetings 11
Introduction meeting 11
Start lecture 11
Final presentation sessions 11
Individual meetings 11
Thesis ring ..... **Error! Bookmark not defined.**
Problems? 11
4. Final presentation 12
Appendix 1: BSc thesis contract form 13
Appendix 2: BSc thesis assessment form 14
Appendix 3: Rubric for BSc thesis assessment 15

1. General information on the BSc thesis

Profile of the course

The BSc thesis offers the student the opportunity to carry out an individual scientific research in the field of Forest and Nature Conservation, thereby using the knowledge and skills acquired during the BSc programme. Under supervision of a lecturer you will write a research proposal, carry out the research, write the thesis and present and discuss the results at a plenary presentation session. The nature of the BSc thesis research varies widely from an experimental project, a data analysis project or a literature review project. Results will be reported by writing a scientific report or article, and by giving an oral presentation.

Assumed prerequisite knowledge

Before you can start with your BSc thesis you should make sure that you have met the admission requirements. You should have passed 102 credits of the common part and major of your BSc programme, including all credits of BSc-1. Before filling in the BSc thesis contract form with your supervisor, you need to check with your study adviser, Pablo Van Neste (last names starting with A-L) or Matthijs Kool (last names starting with M-Z), if you meet the admission requirements. The signature of the study adviser on the contract form confirms that you are qualified to start the BSc thesis. The study advisors are in building Gaia, room B.112. It is recommended to send the contract form by email to the study advisor, as they can also sign digital contract forms.

Learning outcomes

After successful completion of this BSc thesis students are expected to be able to:

- Use advanced knowledge and understanding of the fundamental concepts and mechanisms of research in forest and nature conservation to answer research questions
- Analyse concepts, approaches and methods and reflect upon scientific literature
- Write a research proposal, including theoretical background, problem definition, design of research, project planning, in the field of Forest and Nature Conservation
- Manage a research project within the available time
- Apply common research techniques, such as experiments, collecting and analysing data and/or literature study
- Gather and interpret the most important findings
- Relate and evaluate these findings to conservation issues
- Prepare the contents and structure of a scientific report or article, under supervision
- Orally present the results of the research

Course materials

The course documents, this course guide, the contract form and assessment form, are available at the Brightspace page PEN-80812 BSc Thesis Forest and Nature Conservation. At the start of your third year you will be enrolled in this Brightspace. If you wish to start your thesis and do not have access yet, send an email to the course coordinators at bscthesis.bbn@wur.nl to be added to the page.

Educational activities

- Attend introduction meeting at the start of period 4. In this meeting the course goals, content and procedures will be outlined.
- Search for topic and supervisor.
- Obtain signature by Pablo Van Neste or Matthijs Kool for approval to start the BSc thesis.

- Fill in and sign a BSc thesis contract with your supervisor.
- Attend start lecture on 20 March 2023 (start thesis in period 5)
- Start your thesis by writing your research plan in a proposal, see chapter 2 for guidelines. This research plan has to be approved by your supervisor.
- Carry out your research plan.
- Write a scientific report or article, see chapter 2 for guidelines.
- Present the results to your fellow students and supervisor and participate in the discussion of other presentations, see chapter 4.
- Submit your BSc thesis as Assignment on Brightspace. This enables the plagiarism check.
- Supervisor submits signed assessment form to bscthesis.bbn@wur.nl and petra.kloppenburg@wur.nl.

The course is organised in period 5-6. If you want to start you thesis outside of these periods this is possible, however without the offered lectures, thesis writing sessions and organised presentation sessions. The information provided in the lectures can be found on Brightspace.

Topics, supervisors, thesis contract and workplace

The BSc thesis Forest and Nature Conservation is supervised by four chair groups:

- Forest Ecology and Forest Management Group (FEM)
- Forest and Nature Conservation Policy Group (FNP)
- Plant Ecology and Nature Conservation Group (PEN)
- Wildlife Ecology and Conservation Group (WEC)

Supervisors

All lecturers/researchers involved in Forest and Nature Conservation may supervise BSc thesis students. Postdocs and PhD students may also supervise BSc thesis students, provided that a lecturer acts as second supervisor. The student takes initiative to contact potential supervisors.

BSc thesis contract

When your topic and supervisor are known you have to sign a BSc thesis contract together, see appendix 1.
Together with your supervisor you decide on the content of your thesis, structure, time frame and deadlines, language of your thesis, number of meetings, data management, etc.
Please, send a (digitally) signed copy of your BSc thesis contract (pdf) to bscthesis.bbn@wur.nl and petra.kloppenburg@wur.nl before the start of the thesis work.

Topics

Each chair group publishes potential BSc thesis topics on their website and/or in the tip database: http://tip.wur.nl/. Each chair group has a thesis contact person for additional information, these are Lourens Poorter (FEM), Jim van Laar (FNP), Maaike de Jong and José van Paassen (PEN) and Joost de Jong (WEC). You may also check People at the website of the group of your preference. Most staff members and other researchers such as postdocs and PhDs have information on their research interests.
When you have found a topic or an interesting research project you can make an appointment with the supervisor or the thesis contact person, to discuss the details of the topic.
If you would like to do a subject which is not mentioned on tip.wur.nl or on the websites of the chair groups, or if you want to do your thesis with another chair group you can come up with your own ideas. In this case you have to write a brief proposal (½ A4) about your topic, provisional research questions and methods. Submit this proposal to the BBN BSc thesis coordinators

bscthesis.bbn@wur.nl. They will check if the topic of the BSc thesis is in the field of forest and nature conservation.

Assessment strategy

The supervision and assessment of your BSc thesis project is done by two members of a chair group, of which at least one should be an assistant professor, associate professor or full professor. The other member should have at least an MSc degree. The chair holder holds final responsibility.
The final mark is based on:

- Research competence (30-40%, default 40%):
- Thesis report (50-60%, default 50%):
- Final presentation (10%):

Relative weights (percentages) may be adjusted within the given margins, provided this is agreed upon and recorded in the thesis contract.
The minimum partial grade for the three components of the thesis assessment form is 5.5.
In appendix 2 you can find the assessment form for the BBN BSc thesis. After completion of the thesis, this form should be signed by your supervisor and the 2nd supervisor (or examiner). The student fills out the personal information at the top of the assessment form and sends the assessment form to the supervisors. Two signatures of the supervisors are needed to ensure evaluation is always done by two people. Completed assessment forms and a PDF version of your final report should be sent by e-mail to bscthesis.bbn@wur.nl and petra.kloppenburg@wur.nl.
Take good note of the assessment form, it clearly shows which knowledge and skills will be assessed in the process of your thesis work! Check also the rubrics, included in the assessment form and at the end of this course guide, which are used by supervisors and examiners to grade the research competences, thesis report, and presentation.

2. Content BSc thesis

Research proposal

You start with developing a research proposal. Different types of research can be distinguished:

- Literature study: you critically investigate and assess a relevant theme, or debate on the base of predominantly scientific articles and/or books.
- Secondary data analysis: As a literature study, but additionally you use secondary data sources (e.g. analysis of an existing data base of your supervisor, or analysis of data mentioned in scientific articles or reports).
- Own research: As a literature study, but additionally you carry out your own research (e.g. small number of interviews, small survey, field measurements, lab analysis)
- Design: As a literature study, but additionally you develop, based on your literature study and possibly some experiments, a new tool, new research method or artistic impression (e.g. new set up for catching insects, monitoring animals, innovations in management)

Here are the main sections for a research proposal:

- Title page with title research project, name student + registration number, name supervisor, name chairgroup, date;
- Introduction/ Problem description
  Here you describe in a concise way the problem that is motivating your research. From the broad problem you funnel down to the specific knowledge gap that you are going to address. The purpose of the problem description is to make clear to the reader that the research is important and the research questions are (scientific and societal) relevant. Tailor the problem description to this purpose and do not include all kind of background information that is not really needed for understanding the relevance and importance of the research aim and questions. However, make sure that all the major elements of your research questions are introduced and, if necessary, explained.
- Research aim / objective, included in the introduction
  The research aim is a concise and precise formulation of the contribution that your research aims to make to the solution of the problem described in the previous section. The scope of the research aim should be realistic and proportional to the size of the research project.
- Research questions
  The research questions are the core of the proposal and follow logically from the knowledge gap identified in the Introduction. These are the questions you want to give an answer to in the conclusions of your thesis report. Be modest in your objectives and subsequent research questions. Remember that you will gather and combine theoretical and empirical knowledge during your thesis work. You will not be implementing new (policy) strategies, let alone changing the world…
  Good research questions:
    - are precise (so not too general)
    - are focused on the key issues of the research (so their number is limited, and they do not address issues that are only indirectly related to the research aim)
    - can be answered within the proposed research (so they are not too broad, or beyond the reach of scientific research)
- Conceptual framework (optional, depending on topic)
  In the conceptual framework you introduce the main concepts and theories you intend to use in your research. Although it is often difficult to elaborate on this in the beginning of the research, it is important to give at least some indication of the key concepts in your research

and the theories that might be of interest. When describing your conceptual framework, give adequate references to literature.

- Scope and limitations (optional)
  If you want to set restrictions to the way you will address the research questions, you may include a special section to describe them. This is the case if you will restrict the research to one region, one specific category of actors, one set of literature.
- Methods: approach, analysis and presentation of results
  Here you describe the methods you intend to use. This will depend on the type and topic of your research (i.e. literature, data analysis, experiment, design, social or ecological topic, etc.).
  Depending on your thesis, research methods can include:
    - interviews (structured, semi-structured, or open)
    - surveys: based on a posted questionnaire or on oral interviews; qualitative or quantitative
    - specification of materials, data, or literature to be studied (documents, newspapers, articles, datasets, etc.)
    - description of (statistical, mathematical, experimental etc.) methods, techniques, apparatus(es) to be used (not always for literature research project)
    - estimation of amount of data that can be collected in time available (only for experimental approach)
    - participant observation, focus groups (e.g. workshops), site visits
    - description of how results will be presented.

  Try to describe your methods as accurate as possible. Consult a methodology handbook if you feel uncertain about the methods.
- Time schedule
  The time schedule should preferably be presented as a table with rows consisting of all main research project activities and columns consisting of the weeks, a so-called Gantt chart. Try to be as detailed and accurate as possible (keeping in mind that you may need to modify the schedule in a later stage).
- Bibliography
  Include a provisional bibliography in your proposal, comprising all the relevant titles that you have found so far. In the course of your research you can extend this bibliography, and so keep an up-to-date list of references.
  For your final thesis report you should use at least 15 scientific references (journals, reports).

Outline thesis report

As the domain of forest and nature conservation is very broad, thesis topics and report outline can be very diverse. Below an example of an outline is given, but extensive literature is available on this topic. At the Brightspace site you can find some online scientific writing sources. Sometimes it can be better to combine sections in one chapter, e.g. results and discussion or discussion and conclusion. This outline lists the main elements of a thesis report.

Language

Reports may be written in Dutch or English.

Report or paper?

It is also possible to write the thesis in the form of a scientific article. Please, discuss with your supervisor the details. And if you want to have a different organization of your thesis, discuss possibilities with your supervisor.

Plagiarism

To promote good citation practice and avoid plagiarism, Turnitin assignments are used to detect overlap with previous work. It is important to understand that plagiarism is considered as a very serious offence against academic norms and, hence subject to equally serious punishment. Therefore, read the Wageningen University plagiarism policy in the Student Charter and Appendices Student Charter. If in doubt when it is considered plagiarism, ask your supervisor.

General outline thesis

A thesis is approximately 15 to 20 pages (excluding foreword, table of contents, title page, references and appendices) and the number of words in the core of your thesis should be max. 8,000.
Below you can find a list of the main elements for a thesis report. If you want to have a different organization of your thesis, please discuss with your supervisor.

- Title page
- Title, name student, registration number student, course name, course code, name supervisor, chair group supervisor, date of publication
- Summary
- Table of contents
- Foreword, acknowledgement (optional)
- Introduction
  This chapter can to a large extent be based on the research proposal, and should contain at least sections on problem description, knowledge gap, research aims, research questions, scope and limitations.
- Theory/ conceptual framework chapter (optional)
  Introducing and demarcating the main concepts used, presenting and discussing the main theoretical considerations of the research, and – if applicable – developing hypotheses or another sort of conceptual frame
- Methods
  This section should provide enough detail for reproduction of the findings. Protocols for new methods should be included, but well-established protocols may simply be referred to. Put detailed protocols for newer or less well-established methods in an appendix. The Methods chapter is written in the past tense; you report on a study that is done.
- Results
  The empirical findings will be presented. The results should provide details of all results that are required to support the conclusions of your report. There is no specific limit for this sections, but results that are outside the scope of your research questions or that detract from the focus of your report should not be included. Results are usually written in the past tense, as you report on a study that is done. Large datasets should be submitted as appendices.
  To visualise and summarise results it is important to use figures and tables. Refer to each figure or table in your text.
  Figures
  The aim of the figure legend should be to describe the key messages of the figure, but the figure should also be discussed in the text. It should be possible for a reader to understand the figure without switching back and forth between the figure and the relevant parts of the text. Each legend should have a concise title of no more than 15 words. Put the title and legend below the figure. The legend itself should be succinct, while still explaining all symbols and abbreviations. Avoid lengthy descriptions of methods.

Tables

All tables should have a concise title, placed above the table. The legend and footnotes should be placed above the table. Footnotes can be used to explain abbreviations. Citations should be indicated using the same style as outlined above. Tables occupying more than one printed page should be avoided, if possible.

- Discussion

  The discussion includes the interpretations of your results and some explanation on the significance of your findings. Return in the Discussion to the initial research questions as stated in the Introduction. Use literature to put your research into the context of existing research. How do your results compare to findings from similar studies? Also reflect on the methods used. Indicate the added value of your research relative to existing theory/ literature.

- Conclusion

  This chapter does not introduce new empirical evidence or theoretical debates but summarizes the empirical findings and theoretical arguments of the preceding chapters. The conclusions should give concise answers to the initial ideas and research questions, and these answers should be underpinned by the arguments presented in the previous chapters.
  How do your conclusions affect existing assumptions and models in the field? How can future research build on these observations? Which research should be conducted in the future? The conclusion should be concise and tightly argued. As part of the conclusions, you provide recommendations for further research

- References

  References should be complete and consistent. Special attention should be paid to correct references in case of internet sites. Use of Endnote is recommended.

- Appendices (optional)

  Appendices should only be added if the information is not easily available elsewhere and is needed to fully understand the arguments of the thesis.

3. Meetings BSc thesis

Plenary meetings

Introduction meeting

An introductory meeting during lunch break is organised in the first week of period 4. During this meeting a brief explanation is given about the BSc thesis: e.g. how to find a topic, procedures.

Start lecture

On the first Monday of period 5, a start lecture will be given. The start lecture deals with the time schedule of the BSc thesis, writing the research proposal, tips and tricks for writing and presenting the thesis.

Writing sessions

During period 5 and 6 three writing sessions will be organised, to help with structuring the thesis and writing different sections of the thesis. The exact program will be announced in period 4.

Final presentation sessions

Final presentations are scheduled twice a year, at the end of period 3, and at the end of period 6. Presentations are scheduled after consultation with all students and supervisors. Your supervisor will grade the presentation. The student attends the presentations of the whole morning or afternoon in which his/her presentation is scheduled and contributes to the discussion.

Individual meetings

Besides the two plenary meetings you will have individual appointments with your supervisor. As a student you take the initiative to plan meetings and ask for feedback on draft versions of your proposal, results, and thesis report. In your thesis contract you specify how often you meet your supervisor.

Your supervisor has 20 hours to support you. Within this time contact hours for supervision as well as time for commenting your draft proposal, draft thesis, attending your presentation and grading the final thesis are included! Carefully plan your meetings and, if necessary, ask for additional support. Do not wait too long if you do not know how to proceed!

Proposed meetings:

1. Discussion on topic and planning and BSc thesis contract
2. Discussion draft thesis proposal
3. Discussion preliminary results, thesis outline
4. Discussion draft report
5. Discussion draft presentation
6. Final meeting on grading and feedback on your competences

Problems?

If you encounter problems with your thesis or time schedule, your supervisor is your first contact. It is important to stay in touch with your supervisor.

If you have other problems or questions, please contact the BSc thesis coordinators at bscthesis.bbn@wur.nl.

4. Final presentation

You present your thesis research during a plenary colloquium to your fellow students and supervisor(s) at the end of period 6. It you do your thesis outside of the offered period, so between period 1-4, you will have to arrange a presentation session with your supervisor yourself.
The final presentation is 13 minutes followed by 12 minutes questions and discussion. It is a challenge to present your results in such a short time, which means it is not always possible to present everything you have done.
The introduction of your presentation should raise the interest of the audience and make clear what your thesis is about. Explain what you have done (Methods) and show interesting results as well as unexpected results. Be creative in presenting your results in a new graph, table or scheme. Use drawings, photos or pictures (including source) to illustrate your topic. Come back to your research questions when you present the conclusions. It might not be necessary to discuss al research questions from your thesis. Preferably you use the time to explain the most interesting results, instead of briefly presenting all your results.
It is recommended to discuss a draft presentation with your supervisor.
It is very important to practice your presentation, preferably with a friend or fellow student who can share tips and tricks with you. Students which did not practice their presentation often exceed the 15-minute time limit.
As a minimum requirement to present your thesis you should have submitted your draft thesis.
Deviation from the plenary presentation session is only possible after consultation with the BSc thesis coordinator.
The student attends at least the other presentations of the morning or afternoon in which he/she gives the presentation. You are welcome to attend presentations in other sessions. The students actively participate in the discussion following the presentation by asking questions to the presenting student as indicated in the presentation schedule. The discussion ends with a top & tip for the presenting student. Your supervisor will grade your presentation and give you feedback.

→ GOOD LUCK WITH YOUR BSC THESIS!

Appendix 1: BSc thesis contract form

Contract BSc thesis Forest and Nature Conservation (PEN-80812)

E-mail the completed and signed form as PDF to BSc thesis coordinators bscthesis.bbn@wur.nl and PEN secretary petra.kloppenburg@wur.nl

Student:

Name: Registration nr.:

Supervisor(s) and examiner:

Name supervisor: Position:

Chair group: Email:

Name 2nd supervisor/examiner: Position:

Chair group: Email:

In case of supervisors of 2 chair groups, indicate % of supervision (sum = 90%; 10% for coordination)

(Preliminary) title thesis:

Language thesis (Dutch or English)**:**

Type of research: ☐ Literature review ☐ Analysis of existing data ☐ Modelling study ☐ Generation of new data

Qualified to start thesis?

Student contacts the study advisor for approval signature at the weekly Walk-In (with one of the BBN/MFN study advisors) or via e-mail.

☐ Student meets prerequisite knowledge (102 ects, incl. all BSc-1 courses).

☐ Student meets prerequisite knowledge with the exception of one BSc-1 course. *BSc-1 course name and course code:*

Name study advisor:

Planning

Start BSc thesis	
Submit draft research proposal to supervisor(s)	
Discuss draft research proposal	
Submit draft thesis to supervisor(s)	
Discuss draft thesis	
Discuss draft presentation	
Date of presentation	
Submit final thesis to supervisor(s) and examiner	
Final meeting and assessment	

Agreements (e.g. frequency meetings, lab assistance, workplace, report or article, data storage)

Signatures

Supervisor(s): Student:

Date: Date:

This form (Word-file) can be found at the PEN-80812 Brightspace site.

Appendix 2: BSc thesis assessment form

Assessment BSc thesis Forest and Nature Conservation WUR				
Complete the single lined fields. Please use the rubrics in the other sheets.				
			Fee distribution	
Name chair group (3-letter code)			%	chair group
Name student			10	PEN
Registration number				
Study programme				
Course code thesis	PEN-80812			
Short title thesis				
Date thesis contract				
Date examination		Signatures		
Supervisor chair group				
Supervisor outside chair group (if so)				
Second reviewer / examiner				
		grading mark 1-10		relative weight *
Research competence (30-40%) *				40%
1 Initiative, pro-activity and creativity				
2 Commitment and perseverance				(min. needed 5.50)
3 Time management				0.00
4 Critical and self-reflective capacity				
5 Handling supervisor's comments				
6 Analysis and processing (literature) data				
Thesis report (50-60%) *				50%
1 Problem definition & research questions				
2 Theoretical underpinning and use of literature				(min. needed 5.50)
3 Description methods and analysis data				0.00
4 Clarity of argumentation and conclusions				
5 Critical discussion				
6 Writing skills incl. correct quoting				
Colloquium (10%) *				10%
1 Graphical presentation				(min. needed 5.50)
2 Verbal presentation and defence				0.00
* Relative weights may be adjusted, provided	TOTAL			0.00

This form (Excel-file) can be found at the PEN-80812 Brightspace site.

Appendix 3: Rubric for BSc thesis assessment

Author of the rubric: Marjolijn Coppens, with valuable contributions from Arnold F. Moene, Judith Gulikers, Anja Kuipers, Sonja Isken and Lotte Woittiez, 16-11-2010. Slight adaptations made by Arno Hoetmer 21-8-2015.

Instructions for use of the rubric for BSc thesis assessment in conjunction with the BSc thesis assessment form in appendix 2.

The rubric can be used as a tool to determine the appropriate grade for each criterion of the assessment. In the rubric, which has the form of a table, each line discusses one criterion for assessment, each column gives a level for the grading, and each cell contains the descriptor of the level for that criterion. The criteria in the rubric follow the order of the criteria in the assessment form for the BSc thesis of BPW, BBI, BBT and BML. For more information on the analytic rubric, see e.g. Andrade (2005), Reynolds et al. (2009), URL1, URL2.

The main intention of using a rubric is to enhance the homogeneity of assessments and the ability to communicate about assessments both with students and with colleagues. Furthermore, it clarifies to students the expectations of the supervisor and helps the supervisor to structure feedback during the process of thesis research. However, it should be noted that even with the use of a rubric some arbitrariness will remain.

In a few cases the criteria were split into two or more parts because the description of the criteria clearly covered different subjects. The mark for the criterion should in such a case consist of the average mark for the different subjects or if one criteria is far more important for that particular thesis, that criteria should be should be weighted more.

When determining the grade of a certain criterion, always start at the lowest level and test if the student should be awarded the next higher mark. Note that in some cases achievements of a lower level are not repeated at the higher level because the lower level achievements are implicit in the higher levels. If a level has a range of marks, choose the most appropriate one (consider the description of the level of performance as a continuum, rather than a discrete description). Since the final marks of a thesis usually range between 6 and 9, individual levels have been established for the marks of 6, 7 and 8. When performance is at the 9-10 level, it is necessary to decide whether the student is on the low edge (9) or high edge (10) of this level. Descriptions at the 9-10 level tend to describe the ultimate performance (10). Hence, if a student performs well above 8, but below the description at the 9-10 level, a 9 would be the appropriate mark. Keep in mind that each line in the rubric should be read independently: it could be that a student scores a 1-3 on one criterion and a 9-10 on another.

The final mark of the thesis is determined using the BSc thesis assessment form. The main categories (groups of criteria: research competence, report, presentation) should have an assessment of 'sufficient' (>5.5) before the total thesis work can be considered as sufficient. So, no compensation between main categories is possible to obtain a final mark of 5.5.

Keep in mind that the difference between a BSc and MSc thesis is that a BSc thesis is more intensely supervised than an MSc thesis and/or a BSc thesis project is shorter and less complex project than an MSc thesis project.

References

Andrade, H.G, 2005. Teaching With Rubrics: The Good, the Bad, and the Ugly. College Teaching 53, p. 27-31.

Reynolds, J., R. Smith, C. Moskovitz and A. Sayle, 2009. BioTAP: A Systematic Approach to Teaching Scientific Writing and Evaluating Undergraduate Theses. Bioscience 59, p. 896-903.

URL1: http://jonathan.mueller.faculty.noctrl.edu/toolbox/rubrics.htm Jon Mueller (2010) North Central College, Naperville, IL.

URL2: http://en.wikipedia.org/wiki/Rubric_(academic) Wikipedia, 7-11-2010.

Research competence					
1. Initiative, pro-activity and creativity					
1-3	4-5	6	7	8	9-10
Student shows no initiative or ideas at all.	Student picks up some initiatives and/or ideas suggested by others (e.g. supervisor), but the selection is not motivated.	Student shows some initiative and/or together with the supervisor develops one or two ideas on minor parts of the research.	Student initiates discussions on ideas with supervisor and develops one or two own ideas on minor parts of the research.	Student has his own creative ideas on hypothesis formulation, design or data processing.	Student develops innovative hypotheses, research methods and/or data-analysis methods.
2. Commitment and perseverance					
1-3	4-5	6	7	8	9-10
Student is not motivated. Student escapes work and gives up regularly.	Student has little motivation. Tends to be distracted easily. Has given up once or twice.	Student is motivated at times, but often, sees the work as a compulsory task. Is distracted from thesis work now and then.	The student is motivated. Overcomes an occasional setback with help of the supervisor.	The student is motivated and/or overcomes an occasional setback on his own and considers the work as his "own" project.	The student is very motivated, goes at length to get the most out of the project.
3. Time management					
1-3	4-5	6	7	8	9-10
No planning is made.	Planning is without any detail, not feasible and backup strategies are lacking.	Planning is somewhat concrete but not feasible and backup strategies are lacking.	Planning is quite concrete, but some aspects of the planning are not feasible and backup strategies are insufficient.	Planning is quite concrete and feasible, but backup strategies are insufficient.	Planning is concrete and feasible and backup strategies are sufficient.
Final version of BSc-thesis or presentation hugely overdue (without a valid reason).	Final version of BSc-thesis or oral presentation at one-two months overdue (without a valid reason).	Final version of BSc-thesis or oral presentation at most a month overdue (without valid reason).	Final version of BSc-thesis or oral presentation at most two weeks overdue (without valid reasons).	Final version of BSc-thesis or oral presentation at most one week overdue (without valid reasons).	Final version of BSc-thesis or oral presentation finished within planned period.
4. Critical and self-reflective capacity					
1-3	4-5	6	7	8	9-10
Student doesn't realize the occurrence of strengths and weaknesses of the research (plan).	Student is not able to point out strengths and weaknesses of the research (plan).	Student is able to point out some strengths and weaknesses of the research (plan).	Student is able to point out many of the strengths and weaknesses of the research (plan).	Student is able to point out most of the strengths and weaknesses of the research (plan).	Student is able to point out most of the strengths and weaknesses of the research (plan) and is able to give some constructive suggestions for improvement.
5. Handling supervisor's comments					
1-3	4-5	6	7	8	9-10
Student does not pick up suggestions and ideas of the supervisor.	The supervisor needs to act as an instructor and constantly needs to suggest solutions for problems.	Student incorporates some of the comments of the supervisor, but ignores others without arguments.	Student incorporates most or all of the supervisor's comments.	Supervisor's comments are weighed by the student and asked for when needed.	Supervisor's comments are critically weighed by the student and asked for when needed, also from other staff members or students.

6. Analysis and processing (literature) data: a) experimental work, b) data analysis, c) model development, d) literature analysis. Only assess those criteria that are relevant for the BSc-thesis of the student.					
1-3	4-5	6	7	8	9-10
a) Experimental work Student is not able to setup and/or execute an experiment.	Student is able to execute detailed instructions to some extent, but errors are made often, invalidating (part of) the experiment. Every single step has to be supervised.	Student is able to execute an experiment that has been designed by someone else (without critical assessment of sources of error and uncertainty). Check of supervisor is necessary.	Student is able to execute an experiment that has been designed by someone else. Takes sources of error and uncertainty into account in a qualitative sense.	Student is able to judge the setup of an existing experiment and to include modifications if needed. Takes into account sources of error and uncertainty quantitatively.	Student is able to setup or modify an experiment exactly tailored to answering the research questions. Quantitative consideration of sources of error and uncertainty. Execution of the experiment is flawless.
b) Data analysis Student is lost when using data. Is not able to use a spreadsheet program or any other appropriate data-processing program.	Student is able to organize the data, but is not able to perform checks and/or simple analyses.	Student is able to organize data and perform some simple checks; but the way the data are used does not clearly contribute to answering of the research questions and/or he is unable to analyse the data independently.	Student is able to organize the data, perform some basic checks and perform basic analyses that contribute to the research question.	Student is able to organize the data, perform commonly used checks and perform some advanced analyses on the data.	Student is able to organize the data, perform thorough checks and perform advanced and original analyses on the data.
c) Model development Student is not able to make any modification/addition to an existing model.	Student is able to make minor modifications to an existing model, but errors occur and persist. No validation.	Student is able to make minor modifications (e.g. a single formula) to an existing model. Superficial validation.	Student is able to make major modifications to an existing model, based on literature. Validation using some basic measures of quality.	Student is able to make major modifications to an existing model, based on literature or own analyses. Validation using appropriate statistical measures.	Student is able to develop a model from scratch, or add an important new part to an existing model. Excellent theoretical basis for modeling as well as use of advanced validation methods.
d) Literature analysis Student is not able to organize literature and come to a synthesis.	Student is able to organize the literature, but is not able come to a synthesis that results in own insights, hypotheses or conclusions independently.	Student is able to organize literature and comes to a synthesis that results in own insights, hypotheses or conclusions; but the way the literature is used does not clearly contribute to answering of the research questions	Student is able to organize literature and comes to a synthesis that results in own insights, hypotheses or conclusions which contribute to the research question.	Student is able to organize literature and critically evaluates the quality of his literature sources. He comes to a synthesis that results in own insights, hypotheses or conclusions which contribute to the research question.	Student is able to organize literature and critically evaluates the quality of his literature sources. He comes to an original synthesis that results in own original insights, hypotheses or conclusions which contribute to the research question.

Thesis report					
1. Problem definition & research set-up					
1-3	4-5	6	7	8	9-10
There is no researchable research question and the delineation of the research is absent.	Most research questions are unclear, or not researchable and the delineation of the research is weak..	The research questions are mostly clear but could have been defined sharper at some points.	The research questions and the delineation are mostly clear but could have been defined sharper at some points.	The research questions are clear and researchable and the delineation is clear..	The research questions are clear and formulated to-the-point and limits of the research are well-defined.
No link is made to existing research on the topic. No research context is described.	The context of the topic at hand is described in broad terms but there is no link between what is known and what will be researched.	The link between the thesis research and existing research does not go beyond the information provided by the supervisor.	Context of the research is defined well, with input from the student. There is a link between the context and research questions.	Context of the research is defined sharply and to-the-point. Research questions emerge directly from the described context.	Research is positioned sharply in the relevant scientific field. Student is able to indicate the novelty and innovation of the research.
2. Theoretical underpinning and use of literature					
1-3	4-5	6	7	8	9-10
No discussion of underlying theories.	There is some discussion of underlying theories, but the description shows serious errors.	Student has found the relevant theories, but the description has not been tailored to the project at hand or shows occasional errors.	Student has found the relevant theories, and has been partially successful in tailoring the description to the project at hand. Few errors occur.	Student has found the relevant theories, makes a synthesis of those, and has been successful in tailoring the description to the project at hand.	Clear, complete and coherent overview of relevant theories. Exactly tailored to the project at hand.
No peer-reviewed/primary scientific papers in reference list except for those already suggested by the supervisor	Only a couple of peer-reviewed papers in reference list.	Some peer-reviewed papers in reference list but also a significant body of gray literature.	Relevant peer-reviewed papers in reference list but also some gray literature or text books. Some included references less relevant.	Mostly peer-reviewed papers or specialized monographs in reference list. An occasional reference may be less relevant.	Almost exclusively peer-reviewed papers in reference list or specialized monographs All papers included are relevant.
3. Description methods and analysis (literature) data					
1-3	4-5	6	7	8	9-10
No description of methods and analysis of the information/data.	Insufficient information on methods and insufficient analysis of the information.	Some aspects of the project regarding methods and analysis of information are described insufficiently. Used methods and analysis of data/information are not always appropriate.	Description of methods and analysis of information/data is lacking in a number of places. Used methods and analysis of data/information mostly appropriate.	Description of methods and analysis of information/data is mostly complete, but there are lacking some details. Used methods and analysis of data/information are appropriate.	Description of methods used and analysis of the information is appropriate, complete and clear.
4. Clarity of argumentation and conclusions					
1-3	4-5	6	7	8	9-10
No link between research questions, results and conclusions.	Conclusions are drawn, but in many cases these are only partial answers to the research question. Conclusions merely repeat results or conclusions are not substantiated by results.	Conclusions are linked to the research questions, but not all questions are addressed. Some conclusions are not substantiated by results or merely repeat results.	Most conclusions well-linked to research questions and substantiated by results. Conclusions mostly formulated clearly but some vagueness in wording.	Clear link between research questions and conclusions. All conclusions substantiated by results. Conclusions are formulated exact.	Clear link between research questions and conclusions. Conclusions substantiated by results. Conclusions are formulated exact and concise. Conclusions are grouped/ordered in a logical way.
No recommendations given.	Recommendations are absent or trivial.	Some recommendations are given, but the link of those to the conclusions is not always clear.	Recommendations are well-linked to the conclusions.	Recommendations are to-the-point, well-linked to the conclusions and original.	Recommendations are to-the-point, well-linked to the conclusions, original and are extensive enough to serve as project description for a new thesis project.

5. Critical discussion					
1-3	4-5	6	7	8	9-10
No discussion and/or reflection on the research. Discussion only touches trivial or very general points of criticism.	Student identifies only some possible weaknesses and/or points at weaknesses which are in reality irrelevant or non-existent.	Student indicates most weaknesses in the research, but does not weigh their impact on the main results relative to each other.	Student indicates most weaknesses in the research and is able to weigh their impact on the main results relative to each other.	Student indicates all weaknesses in the research and weighs them relative to each other. Furthermore, (better) alternatives for the methods used are indicated.	Student is able to identify all possible weaknesses in the research and to indicate which weaknesses affect the conclusions most.
No confrontation with existing literature.	Some confrontation with existing literature but incomplete and irrelevant.	Some confrontation with existing literature, some relevance.	Student identifies only most obvious conflicts and correspondences with existing literature. Student tries to describe the added value of his study but does not relate this to existing research.	Student shows minor and major conflicts and correspondences with literature and can identify the added value of his research relative to existing literature.	Student critically confronts results to existing literature and in case of conflicts is able to weigh own results relative to existing literature. Student is able to identify the contribution of his work to the development of scientific concepts
6. Writing skills including correct quoting					
1-3	4-5	6	7	8	9-10
BSc thesis badly structured. In many cases information appears in wrong locations. Level of detail is inappropriate throughout.	Main structure incorrect in some places, and placement of material in different chapters illogical in many places. Level of detail varies widely (information missing, or irrelevant information given).	Main structure is correct, but lower level hierarchy of sections is not logical in places. Some sections have overlapping functions leading to ambiguity in placement of information. Level of detail varies widely (information missing, or irrelevant information given).	Main structure correct, but placement of material in different chapters illogical in places. Level of detail inappropriate in a number of places (irrelevant information given).	Most sections have a clear and unique function. Hierarchy of sections is mostly correct. Ordering of sections is mostly logical. All information occurs at the correct place, with few exceptions. In most places level of detail is appropriate.	Well-structured: each section has a clear and unique function. Hierarchy of sections is correct. Ordering of sections is logical. All information occurs at the correct place. Level of detail is appropriate throughout.
Formulations in the text are often incorrect/inexact inhibiting a correct interpretation of the text.	Vagueness and/or inexactness in wording occurs regularly and it affects the interpretation of the text.	The text is ambiguous in some places but this does not always inhibit a correct interpretation of the text.	Formulations in text are predominantly clear and exact. BSc thesis report could have been written more concisely.	Formulations in text are clear and exact, as well as concise.	*Textual* quality of thesis is such that it could be acceptable for a peer-reviewed journal.
English incorrect and unreadable. Spelling and grammar errors too many to count.	English incorrect and very hard to read. Spelling and grammar errors so numerous that they make the thesis almost impossible to understand.	English somehow correct but not pleasant to read. Spelling and grammar errors numerous.	English basically correct and readable. Spelling and grammar errors present but at acceptable quantities.	English correct and pleasant to read. Some spelling and grammar errors.	English fluent and pleasant to read. Few spelling and grammar errors. English is (almost) at the level of what is written in peer-reviewed journals.
Student is often inconsequent in references in the text and/or reference list or often references are lacking.	Student is often inconsequent in references in the text and/or reference list or often references are lacking.	Student is sometimes inconsequent in references in the text and/or reference list or sometimes references are lacking.	Student is sometimes inconsequent in references in the text and/or reference list.	Student uses one format for references in the text and reference list.	Student uses one format for references in the text and reference list.

Presentation					
1. Graphical presentation					
1-3	4-5	6	7	8	9-10
Presentation has no structure.	Presentation has unclear structure.	Presentation is structured, though the audience gets lost in some places.	Presentation has a clear structure with only few exceptions.	Presentation has a clear structure. Mostly a good separation between the main message and side-steps.	Presentation clearly structured, concise and to-the-point. Good separation between the main message and side-steps.
Unclear lay-out. Unbalanced use of text, graphs, tables or graphics throughout. Too small font size, too many slides.	Lay-out in many places insufficient: too much text and too few graphics (or graphs, tables) or vice versa.	Quality of the layout of the slides is mixed. Inappropriate use of text, tables, graphs and graphics in some places.	Lay-out is mostly clear, with unbalanced use of text, tables, graphs and graphics in few places only.	Lay-out is clear. Appropriate use of text, tables, graphs and graphics.	Lay-out is functional and clear. Clever use of graphs and graphics.
2. Verbal and non-verbal presentation, and defense					
1-3	4-5	6	7	8	9-10
Spoken in such a way that majority of audience could not follow the presentation.	Presentation is uninspired and/or monotonous and/or student reads from slides: attention of audience not captured	Quality of presentation is mixed: sometimes clear, sometimes hard to follow.	Mostly clearly spoken. Sometimes monotonous or difficult to follow.	Clearly spoken in such a way that it keeps audience's attention.	Relaxed and lively though concentrated presentation. Clearly spoken in such a way that it keeps audience's attention.
Student does not make eye-contact, moves in a very restless way or is completely frozen, does not support his words with gestures.	Student hardly makes eye-contact, moves too much or is almost frozen, hardly supports his words with gestures.	Student sometimes makes eye-contact, moves in a way that is not very annoying or distracting, makes some useful supporting gestures.	Student regularly makes eye-contact, moves rather naturally, makes some supporting gestures.	Student makes eye-contact, moves naturally, makes supporting gestures.	Student constantly makes eye-contact, moves naturally, is lively and relaxed and makes supporting gestures.
Language and interest of audience not taken into consideration at all.	Language and interest of audience hardly taken into consideration.	Language and interest of presentation at a couple of points not appropriately targeted at audience.	Language and interest of presentation mostly targeted at audience.	Language and interest of presentation well-targeted at audience. Student is able to adjust to some extent to signals from audience that certain parts are not understood.	Take-home message is clear to the audience. Language and interest of presentation well-targeted at audience. Student is able to adjust to signals from audience that certain parts are not understood
Bad timing (way too short or going on and on till stopped by supervisor or chairman).	Bad timing (way too short or at least twice as long as planned).	Timing marginally okay but rushing or killing time in the end.	Timing more or less okay, no rushing or killing time.	Presentation finished well in time.	Presentation finished well in time.
Student is not able to answer questions.	Student is able to answer only the simplest questions	Student answers some of the relevant questions appropriately and deals in an acceptable way with the questions he cannot answer.	Student is able to answer many relevant questions in an appropriate way, although not to-the-point in some cases.	Student is able to answer most of the relevant questions in an appropriate way.	Student is able to give appropriate, clear and to-the-point answers to all relevant questions