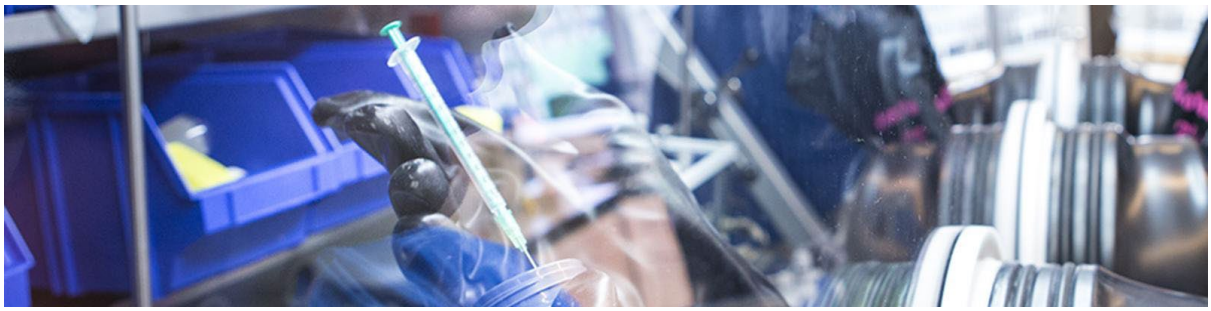
Universiteit Utrecht

Course manual
Bachelor's thesis Chemistry (SK-BTHESIS)
2024-2025



Course coordinator:	Syl Blad & Thomas Wigmans (science.owc.chem@uu.nl)
Number of EC:	15
Level:	3
Period and timeslot:	Period of choice, timeslot ABCD

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Place in the curriculum

The Bachelor's thesis is an aptitude test for the future researcher. The student carries out research and writes & presents a report on it. During the bachelor each student has had the opportunity to practice sub-skills, such as experimenting, writing a report and giving a presentation. These skills will be further refined during the Bachelor's thesis and ultimately assessed.

Assumed prior knowledge

It is possible that certain research groups/projects will request the student to have certain prior knowledge, e.g. certain bachelor courses that must have been completed before starting the thesis there. Ask the supervisor(s) about any knowledge requirements early on.
If during your study certain skills were not assessed properly (or if you practiced them less often than you would have wanted), it is possible to take some additional skills training at the Skills Lab, which offers free coaching on academic writing & thesis support, among other things. Additionally the online academic writing training as offered in the Research Project is also available for all students in this course (see recommended study materials).

Entry requirements

Students must have obtained at least 120 EC from the Bachelor's program in order to register. Besides these 120 EC there are no general requirements in terms of level or content.

Brief course content

The Bachelor's thesis comprises independent research, which the student carries out within a research group of the Department of Chemistry or at another institution where they can do comparable research. The student works individually on a research project under the supervision of a staff member of the section. The results of this research will be processed in a Bachelor's thesis and presented to the members of the section.

Course aims

The objective of the Bachelor's thesis is the completion of the academic education at bachelor's level in the field of scientific chemical research. Therefore, the course aims are similar to the end terms of the Bachelor Program as a whole. The successful completion of the thesis indicates that the student is (to a limited extent autonomously) able to:
- Acquire knowledge in order to solve complex chemical problems, both individually and in a team
- Translate a scientific problem into an experimental research plan, implement the plan and analyze & interpret the results in relation to the relevant literature
- Handle laboratory equipment and chemical materials safely, professionally and responsibly.

In addition, it shows that the student is able to:
- Critically analyze, interpret and evaluate the scientific literature and other data resources as selected by themself
- Communicate in a professional context on their area of expertise, orally and in writing, in both Dutch and English
- Reflect critically on their own and others' actions in a professional context in order to improve their contribution
- Reflect critically on the social and ethical consequences of chemical research and can substantiate their opinion with arguments

Study materials
This course has no general mandatory study materials. The thesis supervisor might recommend certain materials.

Recommended:
- Practical Skills in Chemistry by Dean et al., (2017, 3rd ed.): Ch. 7 on project work and Ch. 67, 68 and 70 on presenting and reporting.
- A digital Academic Writing training (also treated in the research project course) is available in UUlearning via this link through self-enrollment.

Programme and schedule
The student is expected to arrange their own thesis internship at a research group. Most students do their thesis work in year 3, period 4, but if the research group agrees students can also schedule it in a different period, as long as the requirement of at least 120 EC is met.

The Bachelor's thesis has three important phases: Preparation - Execution - Completion.

Preparation
Information regarding the Bachelor Thesis and possible location to perform it can be found in several locations:
- In addition to the information found in this course manual, specifics regarding procedures & research groups are also provided during the Sectie Informatie Avond (SIA) (or "Section Information Evening"), organized by Proton in late October. You will automatically find this in your schedule under the relevant SK-BSLBXX course.
- Information on relevant chemistry-related research groups at the UU can also be found at Bijvoet Center for Biomedical Research, Debye Institute for Nanomaterials Science & Institute for Sustainable and Circular Chemistry. Proton has also listed the sections on their site, in addition to a section booklet with descriptions and thesis experiences from students.
- It is also possible to do your bachelor thesis in the direction of education and didactics at the Freudenthal Institute (see special procedure on the next page). Although thesis work on an educational subject does not involve answering a chemical research question by doing experiments, the criterium remains that students go through the empirical cycle, posing a research question/ hypothesis that will be tested in a real educational environment. In other words, a thesis based only on a literature study is not allowed. If this causes questions after discussing the research plan with your supervisors, please contact the course coordinator.

Once the student feels they have acquired enough information to decide on their preferred research topic, they are expected to contact the relevant research group where they want to conduct research **on their own accord** in a timely manner.

Note: Students that would like to start their project in Period 4 should contact the section only after the SIA, but well in advance of their preferred start date, as places can be limited.

Doing the thesis at a department other than Chemistry is also an option, but requires more initiative and preparation, as it must be clear whether the thesis can actually be carried out at the other department before starting the project.

To this end, the following points must be taken into account by the student:

1. Is the daily supervisor and/or examiner (the examiner must be a staff member) of the other department able to meet the conditions as stated in this course manual? Consider the length of the internship (**8 weeks of full-time practical work**) and the requirements as set out in both contract and assessment form (rubrics).
2. Is **a second examiner available at the Chemistry Department** who can confirm that the project meets the required chemical level and other requirements set by the Chemistry bachelor before the start of the project, and who can assess the thesis work afterwards?

If the student would like to do an **educational bachelor thesis** at the Freudenthal Institute, the following procedure applies:

1. The student contacts the coordinator for the bachelor thesis course within the Freudenthal Institute. The names of the relevant individuals are listed here.
2. A meeting takes place between the coordinator and the student in which the plans for a bachelorthesis are discussed and an approach is decided upon.
3. If interested, the student contacts the thesis coordinator, who will put the student in contact with a staff member within the department that can guarantee the subject level.
4. A preliminary interview will take place with the two supervisors (one from the Freudenthal Institute and one from the department) in which a plan of action will be drawn up and approved by the supervisors. The supervisor from the department chemistry should always be the 2nd examiner for the project.
5. The plan of action will include arrangements for supervision. At least one further meeting with student and both supervisors will take place during the examination.

Before the start of the research period for your thesis, you fill out a contract together with your supervisor in which you determine a number of things, such as working hours, supervision and assessment. **The student should send this** contract **as a PDF document to science.chem.ba@uu.nl with cc. to thesis coordinator at science.owc.chem@uu.nl** , in order for Student Desk (Studiepunt) to enroll the student for the SK-BTHESIS course in Osiris and Blackboard.

Please note: the student must ensure that Student Desk receives the contract on time so that the student can be registered for SK-BTHESIS in Osiris and gets access to the course Blackboard - in any case before the thesis supervisor sends the assessment form (see below) to Student Desk.

Execution

Once the student has been registered for the SK-BTHESIS course, they will be free to execute the project with their supervisor without further involvement from the thesis-coordinator. However, some additional info is present on the SK-BTHESIS blackboard page, as well as the Appendix. Such as:

- The rubrics for the three components of the course: report, practical work and presentation. These rubrics give a clear indication of what is expected of the student during the course.
- An explanation of *the **lay summary***, that differs from the abstract (which is meant for your peers) in that it needs to be understandable to a layman audience and takes the broader motivation for doing the research into account. E.g. is the study based on curiosity (fundamental question within a broader theoretical framework), or perhaps (also) driven by a societal problem. In other words: a story that helps (for example) your granny understand why the research is of importance. You can ask your supervisors if they have any examples available.

Completion
For the definitive feedback on the student's performance, and for the final assessment, **rubrics** are used in an assessment form. After signing, the **examiner** sends this assessment form with rubrics **plus the Ouriginal plagiarism report** as a PDF document to Student Desk, (science.chem.ba@uu.nl) who will register the grade in Osiris. In order to graduate before September 1st, it is important that **the grade is entered into Osiris before August 15th.**

Note: To complete the Bachelor's thesis, the **student** must complete the **Caracal curriculum survey of the course SK-BTHESIS**. This survey concerns the Bachelor's program as a whole and the thesis in particular. The student indicates to the supervisor that the survey has been completed so that the supervisor can tick off this mandatory point on the assessment form.

The Bachelor's thesis is **not** published by default. In order to publish a bachelor's thesis, the examiner has to tick 'yes' to the relevant question on the assessment form.

When the bachelorthesis has been completed and approved, the **student** must upload the final version in Osiris. This is **mandatory**.

- As soon as the assessment form has been sent to the Student Desk and the grade has been entered in Osiris, you will receive an invitation from them to upload your thesis in Osiris Zaak.
- Alternatively, go to Osiris Student and choose *Archive & publish thesis.*

The thesis will remain in Osiris for 7 years. Read more about archiving and publishing within the UU or about the privacy policy.

Attendance and active participation requirements
Each student is expected to participate actively in the course for which he is registered. Unless otherwise stated, the minimum requirement for each course is that a student participates in all required tests and meets all deadlines (EER/OER 4.5.2).

The student makes agreements with the supervisor about attendance, how to act in the event of absence due to unforeseen circumstances and about the consequences of not meeting the agreed attendance obligation.

Feedback, evaluation and assessment
In the thesis contract, the supervisor(s) and student make agreements on interim evaluations. There are three sub-grades to the assessment: practical work (60%), report (30%) and presentation (10%). Within the assessment form is a place for general feedback.

Note: Writing the report is similar to writing a scientific article. The exact requirements that need to be met by the report are determined by the thesis supervisor(s). Please, inquire about these requirements early on.

Numerical marks are expressed as a number on a scale of 1 to 10. Partial results are not rounded. The final assessment of a course is either pass or fail, expressed in numbers: respectively 6 or higher and 5 or lower. Grades lower than or equal to 5 and equal to 6 are expressed with no more than 1 decimal and numerical marks between 5 and 6 are not provided with decimals (EER 5.4.3).

The Bachelor's thesis has to be completed with a sufficient final grade before the end date as determined in the contract. If parts have to be retaken after the end date, the thesis supervisor will make new agreements on this with the student. After the end date and until the retake final grade can be determined, the thesis supervisor will let the Student Desk (science.chem.ba@uu.nl) know of the retake by asking them to register AANV.

If the student has fulfilled all obligations to perform to the best of their ability during the course, as long as the final (failing) mark is at least a four or AANV, they will be given a single opportunity to have an additional or substitute test. (EER 5.5.1). Students will not qualify for an additional or substitute test if they have been awarded a pass (EER 5.5.2)

Partial tests and assignments that were passed will lose their validity (after the end of the academic year) if the course within which they were taken was not passed (EER/OER 5.10.3).
Exceptions: the period of validity of partial results of practicals and for partial results of academic activities (writing assignments, presentations, etc.) is unlimited. In addition, if the student misses out on mandatory practicals during a course due to circumstances beyond their control, which can only be taken again the following academic year, the results of the partial tests of the relevant course remain valid for two years (EER/OER 5.10.3 - Appendix Chemistry).

See the Digital Study Guide for more comprehensive information on regulation regarding assessment including the link to the EER.

Right of inspection
For at least twenty working days after announcement of the result of a written test, the student will be allowed to inspect his or her marked work upon request and in a manner to be determined by the course coordinator (EER 5.11.1).

Fraud and plagiarism
Fraud and plagiarism are defined as an action or omission on the part of students which produces an incorrect representation of their own performance as regards their knowledge, skills and understanding, which may result in the examiner no longer being able to assess the knowledge or ability of the students in a proper and fair manner. (EER 5.14.1). See the Digital Study Guide for examples of fraud and plagiarism.

This includes having others or software carry out (part of) an assignment and passing this off as own work (EER 5.14.1.a.v).

In all cases where fraud or plagiarism is found or suspected, the examiner will inform the student and the Board of Examiners of this in writing. The Board of Examiners will give the student the opportunity to respond to that in writing and to be heard (OER 5.14.2).

Course changes since last year
- Laudatio was added to assessment form checklist
- Contract form was changed so it can fit neatly per page
- Preparations for moving the registration and assessment of the bachelor thesis to Osiris Zaak were made

Appendices
Contract Bachelor's thesis - Assessment form plus Rubrics – instruction Lay summary.

CONTRACT BACHELORTHESIS

Personal information			
Name			
Student number			
Telephone		**E-mail:**	**@students.uu.nl**

Daily supervisor information			
Daily supervisor (name and title)			
Department/Division			
University			
Telephone		**Email:**	
Also examiner?	Yes/no	**Completed supervision instruction?**	Yes/no

Examiner 1 information			
Examiner[1] (name and title)			
Department/Division			
Telephone		**Email:**	**@uu.nl**

Examiner 2 information - if applicable			
Examiner[1] *(name and title)*			
Department/Division			
University			
Telephone		***Email:***	

Research project information			
Title			
Period	From:	till:	**ECTS:**

Signatures of all parties		
Signature of student	Date: Student:	
Signatures of supervisors	Date: Daily supervisor:	Date: UU Examiner appointed for Chemistry[1]:
	Date: *Outside 2nd examiner (not appointed by UU Chemistry)* */or 2nd examiner for UU Chemistry* *in case daily supervisor is not so appointed:*	

[1] In the case of thesis work done outside of the department of Chemistry, the contract is not complete without a signature (=the approval for proposed thesis work) from an appointed UU examiner for Chemistry.
When going outside of the Netherlands for thesis work, students are obliged to register this in Osiris. Please contact the Science International Office to register, science.internatoff@uu.nl.

All parties agree to the following:

Presence	
Working hours	Ca. 8 hours, 5 days a week/ ……..
Holidays	
Absence daily supervisor	

Compulsory Products	
Project outline	Yes/No
Report	Yes/No
Presentation	Yes/No
Deadline Report	Report to be handed over before (max 10 weeks after end date research) Date:
Other products?	

Guidance	
Frequency	Once every two weeks/Once every week/……..

Evaluation (dd/mm/yy)	
Project outline	
Midterm (to discuss progress & guidance)	
Final	

Copyright

Student and Supervisor agree that the copyright of the bachelor thesis is reserved

- **to the research group: yes/no**
- **to the student: yes/no**

No parts of the bachelor thesis may be reproduced, restored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying or otherwise without the prior permission of the research group.

Plagiarism

Student and Supervisor agree that the student or supervisor submits the report for a plagiarism check: https://urkund.sites.uu.nl/

Assessment (weighing)

Assessment	a: Practical work	b: Written report	c: Presentation	d. Other
	60%	**30%**	**10%**	

Other

If applicable student and supervisor can agree on additional issues like: literature study,

lab space, desk space, lab rules on safety etc.

ASSESSMENT BACHELORTHESIS

Personal information			
Name			
Student number			
Telephone		**E-mail:**	**@students.uu.nl**

Daily supervisor information **UU Examiner? Yes/No**		
Daily supervisor (*name and title*)		
Department/Division		
Telephone		**Email:**

UU Examiner information		
Examiner (*name and title*)		
Department/Division		
Telephone		**Email:**

Research project information			
Title			
Period	from:	till:	**ECTS: 15**
Assessment* Project (grades out of 10)	a: Practical work (60%)	b: Written report (30%)	c: Presentation (10%)
	Final grade [Xa+Yb+Zc]		

- ☐ Plagiarism checked in Ouriginal by the examiner (Ouriginal report attached)
- ☐ Laudatio written by the examiner or daily supervisor (attached)
- ☐ Rubrics checklist filled out by examiner (see Rubrics list below)
- ☐ Curriculum survey Caracal sk-bthesis filled out by the student
- ☐ Publish bachelor thesis at UU? (default = no; tick = yes – student and supervisor should agree first)
- ☐ This project was carried out outside the UU Science Faculty under the auspices of an outside examiner at:
  ……
  ……
  ……
  (*name examiner, name group, department, faculty, university, address*)

Signatures of all parties		
Signature of student	Student:	
	Date:	
Signatures of Supervisors	Daily supervisor:	UU Examiner (The assessment form is only valid when the grade is substantiated, e.g. by a filled Rubric). *2nd Examiner (if applicable):*
	Date:	Date UU Examiner: *Date 2nd Examiner (if applicable):*

RUBRICS BACHELORTHESIS

This table serves as a backbone for giving feedback and for assessment of the Bachelorthesis course. Grading of report, the practical work and the presentation and the weighing of the various criteria is the responsibility of the supervisor together with the examiner. Guideline for grading for each of the three parts is that when the score for all criteria is sufficient, the grade should be 7. Note that simply "good" is not the highest attainable level.

Lab work	Inadequate	Sufficient	Good	n.a.
Creativity	No ideas	Commonplace ideas and expected usage	Unusual ideas and elements	
Critical attitude	Self-reflection is absent Critical attitude is absent Shows poor mastering of scientific concepts	Shows self-reflection and has critical attitude towards (published) research Shows sufficient mastering of scientific concepts	Critical attitude is based on intellectual depth and profundity Shows good mastering of scientific concepts	
Integrity	Data manipulated or left out[2] Purposefully untruthful content Work by others not properly attributed	Accurate, reliable and trustworthy Shows awareness of confidentiality of information		
Perseverance, dedication	Loses motivation when experiments fail Not dedicated to the project	Repeats experiments until satisfactory results are obtained Sufficiently dedicated to the project	☐ Perseveres, but knows when to stop. ☐ Takes ownership of the project	
Technical skills	Learns slowly and can only perform learned techniques with a lot of support	Learns well and can perform learned techniques with a minimum of support	Learns quickly and can perform learned techniques and new techniques (through protocols) independently	
Set-up and care for equipment	☐ Built inadequate experimental set-up, help is required with several major details ☐ Many necessary supplies must found in mid-lab	☐ Built adequate experimental set-up with several details that need refinement ☐ Some necessary supplies must be searched out	☐ Built exemplary experimental set-up ☐ All equipment accurately placed ☐ All necessary supplies at hand	☐
Safety	☐ Proper safety precautions are consistently missed	☐ Proper safety precautions are generally used, may need to be reminded once	☐ Proper safety precautions are consistently used; consistently thinks ahead to ensure safety. ☐ Will often help other students to conduct experiments safely	☐
Data collection, lab journal	☐ Measurements are incomplete, inaccurate and imprecise ☐ Observations are incomplete or not included ☐ Many errors with symbols, units and significant figures are not included ☐ Does not allow for repeating experiments	☐ Measurements are mostly accurate ☐ Observations are generally complete ☐ Work is organized ☐ Only a few errors using symbols, units and significant digits ☐ With some searching, experiments can be repeated on the basis of the lab journal	☐ Measurements are accurate with reasonable precision ☐ Observations are thorough ☐ Work is generally neat and organized ☐ Includes symbols, units and significant digits ☐ Experiments can be repeated readily on the basis of the lab journal	☐
Data interpretation	☐ Has difficulties interpreting results, even after explanation	☐ With some help, can interpret results	☐ Can interpret results independently	☐

[2] In case of fraud or plagiarism, the examiner will inform the Board of Examiners of this in writing

Efficiency	☐ Poor planning of lab work	Sometimes inefficient but usually sufficient planning of lab work	☐ Good planning of lab work	☐
Conduct in the lab	Too little respect towards or knowledge of the rules applicable at the work place ☐ Messy work place ☐ Does not clean up general work places ☐ Does not report depleted materials Does not communicate with colleagues.	Adheres well to the rules applicable at the work place ☐ Cleans up work place regularly Tries to keep work place neat ☐ Reports when materials are depleted Communicates and reckons with the needs of colleagues.	Adheres well to the rules applicable at the work place ☐ Cleans up immediately ☐ General work places are cleaned up well ☐ If materials are depleted, they are quickly refilled. Communicates well and reckons with the needs of colleagues.	
Computer skills	☐ Important input files are lost/overwritten and cannot be recovered. ☐ Disk space completely filled, which makes the work of other users impossible.	☐ A general scheme for file organization is used. Creation of input files often requires help of the supervisor.	☐ Student understands the meaning of most of the input files and is able to create them without much help. ☐ Very clear scheme for file organization is used	☐

Report	Inadequate	Sufficient	Good	n.a
Abstract	Layman's abstract incomprehensible for the general public Abstract is missing Abstract is unclear Abstract contains too little or information that is not relevant	Layman's abstract partly comprehensible for the general public Abstract is present Abstract contains sufficient information Abstract is clear Abstract contains the important elements	Layman's abstract comprehensible for the general public Abstract is present and contains all important elements: ☐ introduction ☐ background ☐ general problem ☐ main results ☐ conclusion	
Introduction and research question	Introduction contains too little information Poor overview of the literature Introduction does not contain a clear and focused research question No funnel structure at all	Introduction contains sufficient information Most information is relevant Sufficient overview of the literature Introduction contains a clear and focused research question ☐ Most aspects of the funnel structure recognisable	☐ Introduction contains sufficient and relevant information which places the research question in a perspective ☐ Good overview of the literature ☐ Introduction contains a clear and well-focused research question ☐ Introduction encourages to read on ☐ Clear funnel structure	☐
Experimental or Materials and Methods (M&M)	M&M are incomplete or too much story telling ☐ It is very difficult to repeat experiments on the basis of the reported methods	M&M are complete and sufficiently to the point ☐ Most experiments can be repeated on the basis of the reported methods	☐ M&M are complete and to the point ☐ Experiments can be easily repeated on the basis of the reported methods	☐
Results and discussion	Incomplete description of results Argumentation is lacking Many mistakes in the analysis and interpretation of the results ☐ Difficult to follow without figures or tables ☐ Discussion does not come back to the research question	☐ Complete description of results ☐ Mostly correct argumentation ☐ Analysis and interpretation of results contains only a few mistakes ☐ Mostly easy to follow without figures and tables ☐ Discussion does come back to the research question	☐ Complete and correct description of results ☐ Correct argumentation ☐ Correct analysis and interpretation of results ☐ Easy to follow without figures and tables ☐ Discussion shows a vision on the subject ☐ Discussion does come back to the research question	☐
Figures and tables	Too few of too many irrelevant figures Failed to represent results correctly of representation of irrelevant data ☐ Captions lack essential information ☐ No or incorrect references to figure in the text ☐ No explanation of figures in the text	Sufficient figures Correct representation of most relevant data in clear figures and tables Most captions are correct Correct references to figures in the text Most figures are explained in the text	Sufficient figures, which support the text very well Well-structured and correct representation of relevant data in clear figures and tables ☐ Clear and correct captions Correct references to figures in the text ☐ Good explanation of all figures in the text	

Conclusions	Does not come back to the research question Conclusions are not backed up by results No discussion of weak and strong points of the research ☐ Incorrect conclusion from the results	Does come back to the research question Conclusions are backed up by results Discusses weak and strong points of the research ☐ Largely correct conclusions from the results	Does come back to the research question Conclusions are backed up by results Discusses weak and strong points of the research and has clearly put thought into future research ☐ Correct conclusions from the results	
Referencing	No referencing or too few references Too few primary articles Most of the literature obtained from the supervisors Incorrect referencing Incomplete or untidy list of references Figures reproduced or inspired from the literature not referenced in caption[3]	Referencing to enough references Sufficient reference to primary articles The majority of references selected by the student In general correct referencing Complete and tidy list of references, only a few errors Figures reproduced or inspired from the literature referenced in caption	Referencing to enough references Sufficient reference to primary articles All references selected by the student Correct references in the text Correct and tidy list of references Figures reproduced or inspired from the literature referenced in caption and when relevant clearly attributed to in words	
Style	Style is hardly scientific Too many ill constructed sentences Too little variation in the use of words No explanation of important terms Bad punctuation	Style generally scientific Only a few ill-constructed or too short or long sentences Enough variation in use of words Important terms are explained Generally efficient use of punctuation	Style is scientific, adjusted to the target group, lively and motivating All sentences are well constructed and of the right length Important terms are explained well Correct and efficient use of punctuation	
Grammar	The text is hard to read due to errors in grammar and spelling	There are a few errors in grammar and spelling, but they do not hinder the reader	Only very few errors in spelling and grammar	
The writing process	Needed quite a lot of help to complete the task Responds poorly to suggestions Was not able to obey deadlines	Two rounds of feedback were sufficient to produce a satisfactory end product Responds satisfactorily to suggestions Deadlines kept satisfactorily	Is able to complete the task relatively independently Responds satisfactorily to suggestions Is able to conduct a good, intellectual discussion on the basis of the report. Good at keeping to the deadlines	

[3] In case of fraud or plagiarism, the examiner will inform the Board of Examiners of this in writing

Presentation	Inadequate	Sufficient	Good	n.a.
Scientific content	Unclear relevance and vaguely described aim of the research Research question absent, unclear or without focus Inadequate description of the methods and the results that were obtained Poor explanation the results No arguments used in the discussion of the results Conclusions do not bear on the research question or which are not supported by the results No reflection on weak points or implications Ill-adjusted to the audience	Relevance and aim of the research is clear Research question is sufficiently clear and focused Sufficiently clear description of the methods and the results that were obtained Sufficient explanation of the results Some arguments used in discussion of the results Conclusions bear on the research question and are supported by the results Some reflection on weak point and future research Mostly well-adjusted to the audience	Relevance and aim of the research is clear States a clear research question More than adequate description of the methods that were used and the results that were obtained Good description of the results Correct use of arguments when discussing the results Clear conclusions that bear clearly on the research question and are supported by the results Reflects on weak points and implications Well-adjusted to the audience	
Structure	Hard to discover logical sequence	Mostly logical sequence	Logical sequence	
Time management	The presentation is too short or too long or the speaker had to rush to keep within the time limit	The presentation is of the required length, the speaker did not have to rush, but the available time could have been better distributed between the parts of the presentation	The presentation is of the required length, the speaker did not have to rush, and the available time was well distributed over the parts of the presentation	
Presenting skills	Makes very little contact with the audience Has difficulty holding the audience's attention (little eye contact, distracting posture, pace too slow or too fast) Stalls heavily when a mistake is made Has difficulty speaking clearly and audibly	Makes sufficient contact with the audience The attention of the audience is hard to hold, fluctuates Is, given some time, able to recover after a mistake Some aspects of his speech can be improved	Makes good contact with the audience Is well able to hold the attention of the audience (eye contact, posture, pace of speech) Recovers quickly when a mistake is made Speaks clearly and audibly	
Answering questions	Has difficulty answering questions Is not able to react on criticism	Is able to answer most questions appropriately Reacts on criticism	Has convincing answers on all questions Is able to reflect on criticism	

Materials	No clear relationship with the content of the presentation Cluttered or difficult to read Vague figures and tables with a lot missing in the captions Too many slides, had to skip a few Referencing is missing	Most of the materials bear on the content of the presentation Most is good to read Most figures are clear and have clear captions Amount in accordance with the length of the presentation Appropriate referencing	Well-adjusted to the content and clearly supportive to the main points of the presentation Well structured, readable and clear Clear figures and tables with clear captions Amount in accordance with the length of the presentation Appropriate referencing	

Explanation:

Lay summary

Lay summaries are already commonly used by researchers in many subject areas, as they encourage and increase the possibility of collaboration, and some funding bodies even require them as part of their application procedure. Writing such summaries distilling your work into a portable and maximally accessible form can bring many benefits for your wider interactions with society at large. Among other things, they are great for use in press releases or when communicating with journalists. In short: this is a communications skill worth learning.

Here are some pointers on how to write a useful lay summary:

Predict and cover the 'so what' factor - justify your research.

Give some background and context to the research. What prompted you to do it?

Follow a logical order. This may not always coincide with a temporal order.

Explain the impact of the work - what is going to change (especially in relation to wider society)?

Use succinct, short sentences and write in plain language. Pretend you are trying to explain your article to a distant family member who works in retail/fashion/hospitality.

Avoid jargon unless absolutely necessary and explain it if you do have to keep it in.

Use first person and active voice ('we agreed' rather than 'it was agreed').

Use positives not negative sentences: 'You will have repeat appointments at least once a fortnight', rather than 'The usual practice is not to schedule repeat appointments more frequently than once a fortnight'.

Images are very important - try to include one if you can.

When you think you are ready with your summary, ask a friendly non-academic to read it. Ask them if they understood it: the number of questions you get might dictate that further revision is needed!

Read more on lay summaries here:

https://www.elsevier.com/connect/authors-update/in-a-nutshell-how-to-write-a-lay-summary

https://www.pnas.org/content/112/12/3585