

Assessment report  
Limited Framework Programme Assessment

**Bachelor Chemistry**

Utrecht University

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## 1. Executive summary

In this executive summary, the panel presents the main considerations which led to the assessment of the quality of the Bachelor Chemistry programme of Utrecht University. The programme was assessed according to the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, published on 20 December 2016 (Staatscourant nr. 69458).

The panel regards the programme organisation to be effective.

The panel very much appreciates the programme objectives to offer students the comprehensive education in chemistry, introducing them to the fundamental concepts of chemistry and training them in research and practical skills and academic skills in this domain. The programme research ambition is pronounced.

The objectives of the programme are within the boundaries of the domain-specific reference framework for academic chemical sciences programmes. The panel appreciates the efforts by the joint programmes in chemical sciences in the Netherlands to draft this framework and regards this to be a sound and up-to-date description of this domain. The profile of this Utrecht University programme may be distinguished clearly within the framework, this profile being considered by the panel to be valuable.

The panel understands and supports the programme position to educate students to continue their studies at master level. Students may enrol in a rather wide range of master programmes, which is very positive. Students are also educated to enter the labour market. The panel welcomes students being given opportunities to become grade-two qualified teachers in Chemistry in Dutch secondary education.

The intended learning outcomes of the programme correspond well to the programme objectives. They are comprehensive, well-articulated and conform to the bachelor level.

The number of incoming students is substantial. The panel is pleased to see programme quality being maintained in spite of growing numbers of students.

The curriculum of the programme matches the intended learning outcomes. The curriculum is well-designed and coherent, being structured in teaching-learning lines and in tracks. The teaching-learning lines and tracks are coordinated well. The curriculum is considered by the panel to be very solid, with strong courses. The panel very much appreciates the curriculum in terms of theoretical knowledge and understanding of the domain. The panel considers the research knowledge and skills, including practical skills, to be very appropriately addressed. The academic skills are satisfactorily presented, although the panel advises to reinforce oral presentation skills. The panel supports programme management's plans to strengthen societal and ethical awareness. The panel also suggests to keep biochemistry balanced in the chemistry program also after having put Molecular Life Sciences in a separate stand alone programme.

The staff in the programme are all PhDs and they have strong research backgrounds. Their educational capabilities are up to standard, as the substantial proportions of lecturers being BKO-certified or SKO-certified show. The staff is perceived by the panel to be a coherent team. Highly qualified researchers lecturing in the first years of the curriculum is much appreciated by the panel. The regular staff meetings on education are positive. The panel noted students being very appreciative of the lecturers.

The panel approves of the admission requirements and procedures of the programme. The panel regards these to be strict. The Mathematics B entry requirement is welcomed by the panel.

The educational concept and study methods of the programme are appropriate. Small-scale and activating education is achieved in the face of increasing student numbers. The panel proposes to maintain the level of laboratory practice in the courses, as this practice is essential for students' understanding and skills. The panel is positive about the study guidance, offered in the tutor system. The study load is appropriate and adequately monitored. The student success rates are up to standard. The panel noted with satisfaction the programme moving to new housing in the foreseeable future.

The programme examination and assessment policies are in line with the University and Faculty rules and regulations. The panel is positive about the responsibilities and activities of the Board of Examiners and the Chemistry Executive Panel, acting on behalf of the Board. The examination methods selected in the courses meet the course contents. The supervision and assessment of the Bachelor thesis are appropriate. Although the assessment is conducted reliably, the panel advises to make the thesis assessment processes more transparent.

The measures taken to ensure the examinations and assessments quality are appropriate. Measures are, among others, examiners being appointed by the Board of Examiners, the programme assessment plan, course assessment matrices and regular reviews of examinations and theses by the Chemistry Executive Panel. The panel proposes to introduce standardised plagiarism checks for written assignments.

The examinations of the courses are very adequate and quite challenging. The panel supports the grades for the Bachelor theses and recognises the high average grades to be warranted. The panel appreciates the theses as being very solid in terms of both scientific structure and organisation of the report.

The panel is convinced the graduates have reached the programme intended learning outcomes and welcomes the range of master programmes the graduates are admitted to.

The panel which conducted the assessment of the Bachelor Chemistry programme of Utrecht University assesses this programme to meet the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, judging the programme to be good. Therefore, the panel recommends NVAO to accredit this programme.

Rotterdam, 6 February 2019

Prof. dr. M.A. Cohen Stuart  
(panel chair)

drs. W. Vercouteren  
(panel secretary)

## 2. Assessment process

The evaluation agency Certiked VBI received the request by Utrecht University to support the limited framework programme assessment process for the Bachelor Chemistry programme of this University. The objective of the programme assessment process was to assess whether the programme would conform to the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, published on 20 December 2016 (Staatscourant nr. 69458).

Management of the programmes in the assessment cluster WO Scheikunde convened to discuss the composition of the assessment panel and to draft the list of candidates.

Having conferred with Utrecht University Bachelor Chemistry programme management, Certiked invited candidate panel members to sit on the assessment panel. The panel members agreed to do so. The panel composition was as follows:

- Prof. dr. M.A. Cohen Stuart, professor emeritus, chair of Physical Chemistry & Colloid Chemistry, Wageningen University, professor emeritus of Physical Surface Chemistry, University of Twente, professor East China University of Science and Technology, Shanghai, China (panel chair);
- Prof. dr. A.H.T. Boyen, associate professor emeritus, Faculty of Sciences and Bio-engineering Sciences, Faculty of Medicine and Pharmacy, Vrije Universiteit Brussel (panel member);
- Prof. dr. S. Brul, professor, chair Molecular Biology and Microbial Food Safety, University of Amsterdam (panel member);
- Dr. P. Berben, senior research manager BASF, member leadership team BASF De Meern (panel member);
- L. Büller BSc, student Master Life Science and Technology, Delft University of Technology (student member).

On behalf of Certiked, drs. W. Vercooteren served as the process coordinator and secretary in the assessment process.

All panel members and the secretary confirmed in writing being impartial with regard to the programme to be assessed and observing the rules of confidentiality. Having obtained the authorisation by the University, Certiked requested the approval of NVAO of the proposed panel to conduct the assessment. NVAO have given their approval.

To prepare the assessment process, the process coordinator convened with management of the programme to discuss the outline of the self-assessment report, the subjects to be addressed in this report and the site visit schedule. In addition, the planning of the activities in preparation of the site visit were discussed. In the course of the process preparing for the site visit, programme management and the Certiked process coordinator regularly had contact to fine-tune the process. The activities prior to the site visit have been performed as planned. Programme management approved of the site visit schedule.

Well in advance of the site visit date, programme management sent the list of final projects of graduates of the programme of the most recent years. Acting on behalf of the assessment panel, the process coordinator selected the theses of 15 graduates from the last two years. The grade distribution in the selection was ensured to conform to the grade distribution in the list, sent by programme management. No additional criteria applied.

The panel chair and the panel members were sent the self-assessment report of the programme, including appendices. In the self-assessment report, the student chapter was included. In addition, the expert panel members were forwarded a number of theses of the programme graduates, these theses being part of the selection made by the process coordinator.

Several weeks before the site visit date, the assessment panel chair and the process coordinator met to discuss the self-assessment report provided by programme management, the procedures regarding the assessment process and the site visit schedule. In this meeting, the profile of panel chairs of NVAO was discussed as well. The panel chair was informed about the competencies, listed in the profile. Documents pertaining to a number of these competencies were presented to the panel chair. The meeting between the panel chair and the process coordinator served as the briefing for panel chairs, as meant in the NVAO profile of panel chairs.

Prior to the date of the site visit, all panel members sent in their preliminary findings, based on the self-assessment report and the final projects studied, and a number of questions to be put to the programme representatives on the day of the site visit. The panel secretary summarised this information, compiling a list of questions, which served as a starting point for the discussions with the programme representatives during the site visit.

Shortly before the site visit date, the complete panel met to go over the preliminary findings concerning the quality of the programme. During this preliminary meeting, the preliminary findings of the panel members, including those about the theses were discussed. The procedures to be adopted during the site visit, including the questions to be put to the programme representatives on the basis of the list compiled, were discussed as well.

On 12 June 2018, the panel conducted the site visit on the Utrecht University campus. The site visit schedule was as planned. In a number of separate sessions, the panel was given the opportunity to meet with Faculty Board representatives, programme management, Board of Examiners members, lecturers and final projects examiners, and students and alumni.

In a closed session near the end of the site visit, the panel considered every one of the findings, weighed the considerations and arrived at conclusions with regard to the quality of the programme. At the end of the site visit, the panel chair presented a broad outline of the considerations and conclusions to programme representatives.

Clearly separated from the process of the programme assessment, the assessment panel members and programme representatives met to conduct the development dialogue, with the objective to discuss future developments of the programme.

The assessment draft report was finalised by the secretary, having taken into account the findings and considerations of the panel. The draft report was sent to the panel members, who studied it and made a number of changes. Thereupon, the secretary edited the final report. This report was presented to programme management to be corrected for factual inaccuracies. Programme management were given two weeks to respond. Having been corrected for these factual inaccuracies, the Certiked bureau sent the report to the University Board to accompany their request for re-accreditation of this programme.

### 3. Programme administrative information

Name programme in CROHO: B Chemistry  
Orientation, level programme: Academic Bachelor  
Grade: BSc  
Number of credits: 180 EC  
Specialisations: N.A.  
Location: Utrecht  
Mode of study: Full-time (language of instruction is Dutch and partly English)  
Registration in CROHO: 21PD-56857

Name of institution: Utrecht University  
Status of institution: Government-funded University  
Institution's quality assurance: Approved

## 4. Findings, considerations and assessments per standard

### 4.1 Standard 1: Intended learning outcomes

The intended learning outcomes tie in with the level and orientation of the programme; they are geared to the expectations of the professional field, the discipline, and international requirements.

#### *Findings*

The Bachelor Chemistry is one of the programmes of the Faculty of Science of Utrecht University. Within the Faculty, the programme is part of the Undergraduate School of Sciences. The Board of Studies of the School has the responsibility for the organisation and the quality of this and the other Bachelor programmes of the Faculty. The director of education of the Department of Chemistry, being one of the members of this Board, is specifically responsible for the contents and quality of this programme. The Education Committee, consisting of students and lecturers, evaluates the programme quality and advises the Board of Studies in this respect. The Board of Examiners of the Undergraduate School of Sciences has the authority to monitor the quality of the examinations and assessments of this programme. On behalf of the Board, the Chemistry Executive Panel takes care of the quality control of the assessments and individual requests by students. The lecturers in the programme are employed at and recruited from the Department of Chemistry of the Faculty. The day-to-day management of the programme is in the hands of the programme director in collaboration with the programme coordinator.

The Bachelor Chemistry programme of Utrecht University is a three year research-based, academic bachelor programme in the chemical sciences domain.

The objectives of the programme are to offer students fundamental knowledge, understanding and skills in the field of chemistry. The objectives are to educate students broadly in the fundamental and most important concepts and theories of chemistry, introduce them to chemistry research, train them the practical skills pertaining to chemistry research and teach them academic skills.

The objectives of the programme conform to the domain-specific Frame of Reference Chemical Sciences in the Netherlands, which has been drafted by the joint programmes of this assessment cluster in the Netherlands. In this domain-specific framework, reference has been made to international frameworks and benchmark statements. This Utrecht University programme may be regarded to be placed within the chemistry sub-domain of the chemical sciences.

The programme essentially prepares students for master programmes. Students may select one out of three tracks in the programme, being the tracks Molecules and Materials, Molecules and Health or Molecular Life Sciences. These tracks prepare students for master programmes in the fields of chemical sciences, molecular life sciences or drug innovation. The programme also intends to prepare students to enter the labour market. In practice, this only rarely happens. Students may also opt to become grade-two qualified teachers in Chemistry in secondary education in the Netherlands. Few students do this. Programme management intends to design the Molecular Life Sciences track as a separate programme, at the same time continuing to offer biochemical contents in this programme.



The programme objectives have been translated into the intended learning outcomes of the programme. These include knowledge and understanding of the most important chemistry concepts, application of these concepts in solving chemistry problems, skills to do supervised research in chemistry, safe and responsibly handling of equipment and chemical materials, academic skills in this domain, societal and ethical awareness, and knowing how to proceed to future education or profession.

Programme management drafted a table, mapping the programme intended learning outcomes to the Dublin descriptors for bachelor programmes, from which the correspondence of the intended learning outcomes to these Dublin descriptors may be inferred.

#### *Considerations*

The panel regards the programme organisation to be effective.

The panel very much appreciates the programme objectives to offer students the comprehensive education in chemistry, introducing them to the fundamental concepts of chemistry and training them in research and practical skills and academic skills in this domain. The panel welcomes the thorough training in both theory and research in this domain. The panel noted the research ambition of the programme to be pronounced.

The objectives of the programme are within the boundaries of the domain-specific reference framework for academic chemical sciences programmes. The panel appreciates the efforts by the joint programmes in chemical sciences in the Netherlands to draft this framework and regards this to be a sound and up-to-date description of this domain. The profile of this Utrecht University programme may be distinguished clearly within the framework, this profile being considered by the panel to be valuable.

The panel understands and supports the programme position to educate students to continue their studies at master level. Students may enrol in a rather wide range of master programmes, which is very positive. Students are also educated to enter the labour market. The panel especially welcomes students being given opportunities to become grade-two qualified teachers in Chemistry in Dutch secondary education.

The intended learning outcomes of the programme correspond well to the programme objectives. These intended learning outcomes are comprehensive, well-articulated and stated in clear terms. The intended learning outcomes conform to the bachelor level. This is exemplified by the Dublin descriptors criteria for bachelor level programmes matching the intended learning outcomes.

#### *Assessment of this standard*

These considerations have led the assessment panel to assess standard 1, Intended learning outcomes, to be good.

## 4.2 Standard 2: Teaching-learning environment

The curriculum, the teaching-learning environment and the quality of the teaching staff enable the incoming students to achieve the intended learning outcomes.

### *Findings*

The number of students entering the programme rose substantially over the years, going from 56 students in 2010 via 82 students in 2013 to the influx of 134 students in 2017. A proportion of 30 % to 40 % of incoming students opt for the Molecular Life Sciences track. Programme management plans moderate growth of student numbers.

Programme management presented a table, showing the curriculum to cover all of the intended learning outcomes. The curriculum structure conforms to the Utrecht University Educational Model, consisting of major courses (135 EC), being composed of compulsory core courses and the Bachelor thesis (67.5 EC), major, restricted optional track courses (45 EC) and restricted optional *Chemistry in Context* courses (15 EC), leaving 7.5 EC for an additional chemistry course. In addition, students may select optional courses (45 EC). The core courses, being scheduled in the first year, include courses on mathematics, physics, chemistry, spectroscopy and biomolecular chemistry. Core courses are part of teaching-learning lines. For the restricted optional track courses scheduled in the second year, students are to select three out of five courses of both the *Molecules and Materials* and the *Molecules and Health* tracks. In these six courses, they are introduced to both the physical and material chemistry and the biomolecular domains. The *Molecular Life Sciences* track allows students to focus on the intersection of biology, chemistry and pharmaceutical sciences. In the *Chemistry in Context* courses, students study both general science and chemistry subjects in societal, industrial or ethical contexts, addressing, among others, science and technology for sustainable development, nanomaterials and catalysis. In the optional courses, which are mostly scheduled in the third year, students may deepen or broaden their knowledge and understanding. They may take courses to extend their preferred track. These courses also allow to take minors, such as the educational minor. At the end of the curriculum, students do the Bachelor thesis project. Research skills are addressed in many of the courses mentioned, as doing research is integrated in these courses. One of the optional courses, *Research Project*, taken by many students, specifically requires students to conduct a group project within the research groups of the Department. The Bachelor thesis is an individual research project. Practical skills, pertaining to research are trained in many of the courses mentioned, as courses include practical laboratory work. Students are trained in academic skills, such as analytical thinking, critical thinking, presentation, writing and collaboration skills. These skills are not so much the subject of separate courses, but are mostly trained as part of the content-driven courses mentioned. Programme management feels ethical and societal awareness ought to be more strongly addressed in the curriculum. Programme management plans to reinforce this either by a separate learning line or by including this in other courses. Talented students may opt for the double degree programme in Chemistry and Physics (total of 225 EC) or may select the Faculty-wide honours programme.

The staff lecturing in the programme are 51 lecturers (49.7 fte). All of the lecturers have PhDs and are active researchers in this domain. The lecturers introduce their research in the courses. About 63 % of them are at least BKO-certified and a number of others are in the process of obtaining this certificate.

About 40 % of the lecturers are SKO-certified. The BKO-certificate is a prerequisite to obtain permanent positions. In monthly staff meetings, the programme is discussed. In addition, staff meet in the committee of lecturers and within sections of the Department. Lecturers are very much appreciated by students. The work load of the lecturers seems to be balanced, although the average teaching effort (in FTE) per credit is not precisely known. The growing numbers of students led programme management to schedule courses for teaching assistants to help lecturing in tutorials and laboratory practice.

The entry requirements are the Dutch pre-university secondary school (vwo) diploma, having completed either the Nature & Technology or Nature & Health profiles. The latter profile must include Mathematics B and Physics. Students with propaedeutic diplomas in Chemistry from higher vocational education institutes (hbo) are only admitted with vwo-certificates in Mathematics B and Physics. Students experiencing problems in mathematics, are advised to take the *Mathematics Summer Course*, scheduled prior to the programme. All incoming students are required to attend the matching day, which includes being present at a lecture and a tutorial, doing a small test and reflecting upon the programme.

The educational concept of the programme is in line with the Utrecht University educational concept. Students are offered activating and small-group learning, complemented by regular assessments. Students are required to prepare classes and to participate in class. The numbers of hours of face-to-face education per week are about 22 hours in the first year, about 15 hours in the second year and nearly 12 hours in the third year. The study methods are lectures, tutorials and laboratory practice. The students-to-staff ratio is 7.5 : 1, but it is not exactly clear what the effort (in FTE) is to offer the programme. Lectures may be large-scale, being lectured by staff members. Full professors tend to lecture in the first year of this programme. In tutorials or problem solving classes, a maximum of 30 students are supervised by PhD students. In lab practice, groups of about 10 students are guided by lab staff, PhD students and student assistants. Safety issues are addressed. In some of the courses, students do group assignments. Computer-based study methods are introduced gradually. Tutors, being staff members, guide groups of four students, advising them about their study paths. Meetings between tutors and students are quite frequent. In addition, students meet in groups of eight students with their student-tutor. Study advisors act as back-up for the tutors. Students regard the study load to be manageable. Programme management monitors the study load very regularly. The proportion of students dropping out in the first year is about 20 %. The average student success rates are about 40 % after three years and about 75 % after four years (figures for the last four to five cohorts).

### *Considerations*

The number of incoming students is substantial. The panel is pleased to see programme quality being maintained in spite of growing numbers of students.

The curriculum of the programme matches the intended learning outcomes. The curriculum is well-designed and coherent, being structured in teaching-learning lines and in tracks. The teaching-learning lines and tracks are coordinated well. The curriculum is considered by the panel to be very solid, with strong courses. The panel very much appreciates the curriculum in terms of theoretical knowledge and understanding of the domain of the programme. The panel considers the research knowledge and skills, including practical skills, to be very appropriately addressed in the curriculum. The academic skills are satisfactorily presented, although the panel advises to reinforce oral presentation skills. The panel supports programme management's plans to strengthen societal and ethical awareness in the curriculum. The panel also suggests to keep biochemistry balanced in the chemistry program also after having put Molecular Life Sciences in a separate stand alone programme.

The staff in the programme are all PhDs and they have strong research backgrounds. Their educational capabilities are up to standard, as the substantial proportions of lecturers being BKO-certified or SKO-certified show. The staff is perceived by the panel to be a coherent team. Highly qualified researchers lecturing in the first years of the curriculum is much appreciated by the panel. The regular staff meetings on education are very positive. The panel noted students being very appreciative of the lecturers.

The panel approves of the entry requirements and the admission procedures of the programme. The panel regards these to be strict. The Mathematics B entry requirement is welcomed by the panel.

The educational concept and study methods of the programme are appropriate, study methods being tailored to course contents and their effectiveness being regularly reviewed. Small-scale and activating education is achieved in the face of increasing student numbers. The panel proposes to maintain the level of laboratory practice in the courses, as this practice is essential for students' understanding and skills. The panel is positive about the study guidance, offered in the tutor system. The panel regards the study load to be appropriate, being adequately monitored. The student success rates are up to standard. The panel noted with satisfaction the programme moving to new housing in the foreseeable future.

### *Assessment of this standard*

These considerations have led the assessment panel to assess standard 2, Teaching-learning environment, to be good.

### 4.3 Standard 3: Student assessment

The programme has an adequate system of student assessment in place.

#### *Findings*

The programme policies regarding examinations and assessments conform to the Utrecht University educational model requirements and to the Faculty of Science examination policy. Programme policies and measures taken are laid down in the programme assessment plan. As has been indicated, the Board of Examiners of the Undergraduate School of Sciences has the responsibilities to monitor examinations and assessments in this programme. The Chemistry Executive Panel of the Board takes care of the quality control of the assessments and individual requests by students.

The examination methods in the programme include written or electronic examinations, lab work, written assignments, and oral presentations. In each of the courses, multiple examination methods are scheduled, to allow for various knowledge and skills components to be assessed, and to balance the study load of the courses. The final grade of the courses is the weighted outcome of the grades of these examinations.

The Bachelor thesis (15 EC) is an individual research project. Before the start of the project, the practical details of the projects are agreed upon in writing. Students have to perform the full research cycle, being composed of the research question, research plan, carrying out research and reporting in writing and orally. The thesis project is supervised by one of the staff members. The lab work involved in the thesis tends to be supervised by a PhD student. The theses are assessed by the staff member and the PhD student, using the thesis scoring form and assessing the lab work (30 % of grade), written report (60 %) and oral presentation (10 %). They determine the grade in consultation. This year, rubrics forms will be introduced to assist examiners in the grading process. Bachelor theses are checked for plagiarism or fraud, which will become mandatory in 2017/2018.

In the programme, a number of measures have been taken to ensure the quality of examinations and assessments. The assessment plan for the programme has been drafted, aligning the intended learning outcomes of the programme, the course objectives and course examinations. Examiners are appointed by the Board of Examiners, they being required to be BKO- or SKO-certified. For the courses, assessment matrices are drafted, showing the relations between the course examinations and the course objectives. Model answers for the examinations are presented as well. Examination results are analysed, but not yet all of them. The Chemistry Executive Panel of the Board regularly reviews samples of examinations and theses, verifying contents, validity, reliability and transparency.

#### *Considerations*

The panel observed the programme examination and assessment policies to be in line with the University and Faculty rules and regulations. The panel is positive about the responsibilities and activities of the Board of Examiners and the Chemistry Executive Panel, acting on behalf of the Board.

The examination methods selected in the courses are approved by the panel, as they meet the contents of the courses to be assessed. The scheduling of multiple examinations in the courses balances the study load and allows both students' knowledge and skills to be assessed.

The supervision of the Bachelor thesis is organised adequately, being governed by the written agreement between students and supervisors. The assessment is conducted reliably. The panel, however, advises to make the thesis assessment processes more transparent.

The panel welcomes the measures taken by programme management to ensure the examinations and assessments quality. Examiners are appointed by the Board of Examiners. The validity of the examinations is promoted through the programme assessment plan and the course assessment matrices. The reliability of the assessments is fostered by model answers, assessment forms and rubrics. The panel is positive about the regular reviews of examinations and theses by the Chemistry Executive Panel. The panel proposes to introduce standardised plagiarism checks for written assignments.

*Assessment of this standard*

The considerations have led the assessment panel to assess standard 3, Student assessment, to be satisfactory.

#### 4.4 Standard 4: Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.

##### *Findings*

The panel reviewed a number of examinations of courses in the programme.

The panel reviewed fifteen Bachelor theses of programme graduates of the last two years. The average grade of the theses was 8.0 in 2015/2016 and 7.7 in 2016/2017.

The vast majority of the graduates of the programmes continue their studies at master level. As has been said, they are admitted to master programmes in the fields of chemical sciences, molecular life sciences or drug innovation of Utrecht University, as well as to programmes of other universities in the Netherlands.

##### *Considerations*

The examinations of the courses which were reviewed by panel members were very appropriate and quite challenging.

The panel supports the grades awarded to the Bachelor theses, thereby recognising the high grades to be warranted. The theses definitely were not graded too high. The panel appreciates the theses as being very solid in terms of both scientific structure and organisation of the report. The level achieved by students was truly good, both for general chemistry and for the Molecular Life Sciences track.

The panel is convinced the programme graduates to have reached the intended learning outcomes of the programme and welcomes the range of master programmes the graduates are admitted to.

##### *Assessment of this standard*

The considerations have led the assessment panel to assess standard 4, Achieved learning outcomes, to be good.

## 5. Overview of assessments

Standard	Assessment
Standard 1. Intended learning outcomes	Good
Standard 2: Teaching-learning environment	Good
Standard 3: Student assessment	Satisfactory
Standard 4: Achieved learning outcomes	Good
Programme	Good



## 6. Recommendations

In this report, a number of recommendations by the panel have been listed. For the sake of clarity, these have been brought together below.

- To reinforce oral presentation skills in the curriculum.
- To strengthen societal and ethical awareness in the curriculum, in support of programme management's plans.
- To keep biochemistry balanced in the chemistry program also after having put Molecular Life Sciences in a separate stand alone programme.
- To maintain the level of laboratory practice in the courses, as this practice is essential for students' understanding and skills.
- To make the assessment processes of the Bachelor thesis more transparent.
- To introduce standardised plagiarism checks for written assignments.

