

Biological Sciences

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This report was finalized on 2 March 2016

Report on the master's programme Biological Sciences of University of Amsterdam

This report takes the NVAO's Assessment Framework for Limited Programme Assessments as a starting point (19 December 2014).

Administrative data regarding the programme

Master's programme Biological Sciences

Name of the programme:	Biological Sciences
CROHO number:	60707
Level of the programme:	master's
Orientation of the programme:	academic
Number of credits:	120 EC
Specializations or tracks:	Ecology and Evolution General Biology Green Life Sciences Limnology and Oceanography
Location(s):	Amsterdam
Mode(s) of study:	full time
Language of instruction:	English
Expiration of accreditation:	28-4-2017

The visit of the assessment panel Biological Sciences to the Faculty of Science of University of Amsterdam took place on 26-27 November 2015.

Administrative data regarding the institution

Name of the institution:	University of Amsterdam
Status of the institution:	publicly funded institution
Result institutional quality assurance assessment:	positive

Composition of the assessment panel

The NVAO has approved the composition of the panel on 21 September 2015. The panel that assessed the master's programme Biological Sciences consisted of:

- Prof. dr. Jan Kijne (chair), Professor emeritus of BioScience, Leiden University;
- Prof. dr. Ton Bisseling (vice-chair), Professor of Molecular Biology, Wageningen University;
- Prof. dr. Herman Verhoef, Professor emeritus of Soil Ecology, VU University Amsterdam;
- Prof. dr. Rens Voeselek, Professor of Plant Ecophysiology, Utrecht University;
- Prof. dr. Maarten Frens, Professor of Systems Physiology, Erasmus University Rotterdam;
- Jeffrey Verhoeff BSc. (student member), master's student Biology and Animal Sciences, Wageningen University.

The panel was supported by drs. José van Zwieten, who acted as secretary.

Appendix 1 contains the curricula vitae of the panel members.

Working method of the assessment panel

The panel which assessed the bachelor's programmes Biology and Psychobiology and the master's programme Biological Sciences of the University of Amsterdam, is part of a cluster assessment. From June 2015 until January 2016, the panel assessed a total of twenty-three programmes at seven universities.

The panel consisted of thirteen members:

- Prof. dr. Jan Kijne (chair), Professor emeritus of BioScience, Leiden University;
- Prof. dr. Ton Bisseling (vice-chair), Professor of Molecular Biology, Wageningen University;
- Prof. dr. Maarten Frens, Professor of Systems Physiology, Erasmus University Rotterdam;
- Prof. dr. Marieke van Ham, Professor of Biological Immunology, University of Amsterdam;
- Prof. dr. Paul Hooykaas, Professor of Molecular Genetics, Leiden University;
- Dr. Andries ter Maat, Research Scientist, Max Planck Institute for Ornithology;
- Dr. Maarten van der Smagt, Associate Professor of Experimental Psychology, Utrecht University;
- Prof. dr. Joost Teixeira de Mattos, Professor of Quantitative Microbial Physiology, University of Amsterdam;
- Prof. dr. Herman Verhoef, Professor emeritus of Soil Ecology, VU University Amsterdam;
- Prof. dr. Jos Verhoeven, Professor emeritus of Landscape Ecology, Utrecht University;
- Prof. dr. Rens Voeselek, Professor of Plant Ecophysiology, Utrecht University;
- Pieter Munster MSc. (student member), policy officer at Leiden University and graduate of the master's programme Cancer, Genomics & Developmental Biology, Utrecht University;
- Jeffrey Verhoeff BSc. (student member), master's student in Biology and Animal Sciences, Wageningen University.

For every site visit, a (sub)panel was composed, based on the expertise and availability of panel members, thereby preventing possible conflicts of interests. Panels regularly consisted of five or six members. In order to enhance consistency of assessment within the cluster, professor Kijne acted as chair during all seven site visits. Coördinator of the cluster assessment Biology is dr. Kees-Jan van Klaveren, employee of QANU. He acted as secretary of the panel at Wageningen University and Utrecht University. He was also present during the final meetings of the five other site visits and read and commented upon each draft report in order to safeguard consistency of assessment. Dr. José van Zwieten, freelance employee of QANU, acted as secretary of the panel at Leiden University, Radboud University Nijmegen, the University of Groningen, the University of Amsterdam and Vrije Universiteit Amsterdam. In Groningen dr. Fiona Schouten, employee of QANU, acted as second secretary to the panel.

Preparation

The panel held a preliminary meeting on May 22, 2015. During this meeting the panel was instructed about the accreditation framework and the programme of the upcoming assessments. Furthermore, the panel discussed its working methods in preparation to and during the site visits. A vice-chair was appointed and the Domain Specific Frameworks for Biology and Psychobiology were discussed.

To prepare the contents of the site visits, the coordinator first checked the quality and completeness of the critical reflections prepared by the programmes. After establishing that the reports met the demands, they were forwarded to the participating panel members. The panel members read the reports and formulated questions and findings on their contents.

Next to the critical reflections, the panel read a selection of fifteen theses per programme. The theses were chosen by the chair of the panel from a list of graduates of the last two completed academic years within a range of grades.

Site visit

A preliminary programme of the site visit was made by the coordinator and adapted after consultation of the contact persons at the University of Amsterdam. The time table for the visit in Amsterdam is included as Appendix 5.

Prior to the site visit, the panel asked the programmes to select representative interview partners. During the site visit, meetings were held with panels representing students and teaching staff, institute management, programme management, alumni, the Programme Committee and the Board of Examiners.

During the site visit, the panel examined material it had requested; an overview of this material is given in Appendix 6. The panel provided students and lecturers of the master's programme with the opportunity – outside the set interviews – to speak informally to the panel during a consultation hour. No requests were received for this option.

The panel used the final part of the visit for an internal meeting to discuss its findings. The visit was concluded with a public oral presentation of the preliminary impressions and general observations by the chair of the panel.

Report

Based on the panel's findings, the secretary prepared a draft report. This report was then presented to the panel members involved in the site visit. After implementing their comments and receiving approval, the draft report was sent to the programme management with the request to report any factual inaccuracies. The comments received were discussed with the panel's chair. Subsequently, the final report was approved and sent to University of Amsterdam.

Decision rules

In accordance with the NVAO's Assessment framework for limited programme assessments, the panel used the following definitions for the assessment of both the standards and the programme as a whole.

Generic quality

The quality that can reasonably be expected in an international perspective from a higher education bachelor's or master's programme.

Unsatisfactory

The programme does not meet the current generic quality standards and shows serious shortcomings in several areas.

Satisfactory

The programme meets the current generic quality standards and shows an acceptable level across its entire spectrum.

Good

The programme systematically surpasses the current generic quality standard.

Excellent

The programme systematically well surpasses the current generic quality standard and is regarded as an international example.

Summary judgement

The master's programme Biological Sciences aims at providing a student-oriented education of high, internationally recognized quality in an international setting. Furthermore, it aims to let students conduct empirical research that allows them to develop their skills, knowledge and insights into Biological Sciences. The programme wants students to become research-skilled professionals who can deal with current scientific knowledge and to apply this knowledge independently in new and continuously changing practical situations.

According to the panel, the intended learning outcomes of the master's programme Biological Sciences are in line with (inter)national requirements and show a strong research focus. All tracks harbour one or more distinguishing features in their profiles. However, the different sets of learning outcomes do not yet reflect the development towards New Biology. The panel encourages the programmes to develop learning outcomes that more accurately reflect the programme's ambitions, distinct character and adaptation of current developments in research.

The master programme Biological Sciences is a two-year-programme that consists of 120 EC. Students compose their individual programme. Students can choose between four research-oriented tracks that are strongly determined by the research expertise of the contributing institutes: General Biology, Ecology & Evolution, Green Life Sciences and Limnology & Oceanography. Students can also participate in one of four more vocationally oriented programmes: a Teaching major, a Science Communication major, a Science in Society major or the Tesla minor, which trains students in tackling business or societal cases in interdisciplinary environments.

Each track consists of obligatory courses, elective courses, a literature review and one or two research projects. The panel established that the curricula of the different research tracks offer students adequate opportunities for academic specialisation. Acting as temporary members of the research group, students are well guided while developing themselves as independent researcher. The courses and research projects take place in very good research environments. The programme could be improved by adding a course that provides students from all tracks with an overview of advanced research topics in biology. This would also serve to give the General Biology track a more established profile of 'generalist biologists'. The panel considers the Green Students Lab of the Green Life Sciences track a *best practice* of society driven research.

The four society-oriented specialisations provide students with a good orientation on professions outside academia. The students obtain complementary knowledge and skills that enable them to use their biological knowledge in business, policy, communication or education environments.

The programmes use a variety of teaching methods: lectures, case studies, field work, group assignments and individual research projects. According to the panel these are adequate didactic practices for a master's programme in biology. The panel established that the programme is feasible but demands good planning skills from students. The track coordinator supports them in this, but until now this has not resulted in timely study success rates. Qualified and highly motivated staff members deliver the programme. According to the panel the student-staff ratio is sufficient. The Programme Committee plays a proactive role in the quality assurance of the programmes. Study and research facilities are good.

The panel has examined whether the master's programme has an adequate assessment system in place. It has determined that the programme uses various types of assessments that match the respective learning objectives of the different programme components. The panel concludes that the Examinations Board has established adequate procedures that safeguard the quality of testing. Furthermore, the assessment of literature reviews and research projects are well organized. The panel also concludes that proper measures have been taken to raise awareness about the assessment quality among teachers and to support them with the implementation of the assessment system.

After studying a sample of final reports, the panel established that students realize the intended learning outcomes of the master's programme in Biological Sciences. The final reports show an adequate and high academic level, often resulting in publications in academic peer-reviewed journals. Based on the performance of alumni the panel concludes that the programme prepares students well for an academic, societal or business position on the labour market.

The panel assesses the standards from the *Assessment framework for limited programme assessments* in the following way:

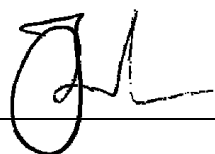
Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	good
Standard 3: Assessment	good
Standard 4: Achieved learning outcomes	good
General conclusion	good

The chair and the secretary of the panel hereby declare that all panel members have studied this report and that they agree with the judgements laid down in the report. They confirm that the assessment has been conducted in accordance with the demands relating to independence.

Date: 2 March 2016



Prof. dr. Jan Kijne



drs. José van Zwieten

Description of the standards from the Assessment framework for limited programme assessments

The Master's programme *Biological Sciences* at the University of Amsterdam (UvA) is organized by the Graduate School of Life and Earth Sciences at the Faculty of Science. It is supported by staff members from research groups of the Institute for Biodiversity and Ecosystem Dynamics (IBED) and the Swammerdam Institute for Life Sciences (SILS). The daily management of the programme is delegated to the programme director. The programme has a joint Programme Committee (PC) and Examinations Board with the bachelor's programme Biologie.

Standard 1: Intended learning outcomes

The intended learning outcomes of the programme have been concretised with regard to content, level and orientation; they meet international requirements.

Explanation:

As for level and orientation (bachelor's or master's; professional or academic), the intended learning outcomes fit into the Dutch qualifications framework. In addition, they tie in with the international perspective of the requirements currently set by the professional field and the discipline with regard to the contents of the programme. Insofar as is applicable, the intended learning outcomes are in accordance with relevant legislation and regulations.

Findings

The Consultative Body of Higher Educational Teaching in Biology ('Overlegorgaan Hoger Onderwijs Biologie', OHOB), in which all academic degree programmes in the Netherlands are represented, has drawn up the Domain-Specific Frameworks of Reference (hereafter the Frameworks) for academic bachelor's and master's programmes in Biology. This document demarcates the domain of Biology, and touches upon the recent transition towards New Biology. The past focus on mono-subdisciplines has shifted towards integration of scientific disciplines and requires competences in dealing with the dynamics and complexity of life as a network, from molecules to ecosystems. The Frameworks provide a set of general requirements for academic bachelor's and master's programmes in Biology.

The panel has studied the Frameworks, and notes that their general requirements correspond with the internationally accepted Dublin descriptors. In terms of contents, the requirements also encompass what might be expected of an academic bachelor's or master's programme in Biology. The panel appreciates the fact that New Biology is mentioned in the Frameworks. However, it notes that New Biology and the corresponding scientific attitude have not yet been translated into concrete requirements for academic degree programmes. The panel expects that in the next revision of the document, the integrative and interdisciplinary nature of Biology will be more recognised in the general requirements.

According to the critical reflection, the master's programme Biological Sciences aims at providing a student-oriented education of high, internationally recognized quality in an international setting. Furthermore, it aims to let students conduct empirical research that allows them to develop their skills, knowledge and insights into Biological Sciences. The programme wants students to become research-skilled professionals who can deal with current scientific knowledge and apply this knowledge independently in new and continuously changing practical situations.

Students can choose between four research-oriented tracks that are strongly determined by the research expertise of the contributing institutes: General Biology, Ecology & Evolution,

Green Life Sciences and Limnology & Oceanography. Students can also participate in one of four vocational programmes: a Teaching major, a Science Communication major, a Science in Society major or the Tesla minor, which is developed by the Institute for Interdisciplinary Studies at the Faculty of Science and trains students in tackling business or societal cases in interdisciplinary environments.

The programme has identified twelve general intended learning outcomes (See appendix 3) that are applicable for all tracks. Additionally, each track has two to four track-specific final qualifications.

According to the panel, the intended learning outcomes describe in detail the track-specific set of knowledge students need to obtain. The panel concludes that they are in agreement with the domain-specific framework as well as the international Dublin descriptors. Yet they do not refer to New Biology. The panel suggests that incorporating such an important development within the academic field would strengthen the research profile of the programme. The panel is pleased to note that the outcomes explicitly refer to functioning in interdisciplinary contexts, to the ability to integrate the many organizational levels present in the living system and to understand the interactions between biological sciences and other sciences. In the opinion of the panel, these aspects are particularly urgent in the field of biology, where participation in new developments taking place across traditional scientific boundaries is currently one of the greatest challenges. The panel also concludes that the outcomes are appropriate to a master's programme: after graduating from one of these programmes, students have become academics that are able to set up and conduct research. They display an academic attitude in dealing with societal demands placed on their work and position.

The panel suggests that the intended learning outcomes could benefit from more UvA-specific profiling. Although the different tracks do mark the topical research orientation, the profile could also be expressed in terms of the type of researchers the UvA intends to educate. From its conversations with the programme management and some remarks in the critical reflection, the panel holds the impression that there are signals towards such a profile: society-driven research seems to be an ambition and a nascent theme.

Considerations

According to the panel, the intended learning outcomes of the master's programme Biological Sciences are in line with (inter)national requirements and show a strong research focus. All tracks harbour one or more distinguishing features in their profiles. However, the different sets of learning outcomes do not yet reflect the modern development towards New Biology. The panel encourages the programmes to develop learning outcomes that more accurately reflect the programme's ambitions, distinct character and adaptation of current developments in research.

Conclusion

Master's programme Biological Sciences: the panel assesses Standard 1 as 'satisfactory'.

Standard 2: Teaching-learning environment

The curriculum, staff and programme-specific services and facilities enable the incoming students to achieve the intended learning outcomes.

Explanation:

The contents and structure of the curriculum enable the students admitted to achieve the intended learning outcomes. The quality of the staff and of the programme-specific services and facilities is essential to that end. Curriculum, staff, services and facilities constitute a coherent teaching-learning environment for the students.

Findings

The panel has studied the curriculum of the master's programme Biological Sciences. The panel has read course materials, reports of relevant committees and study information on the digital learning environment Blackboard. This standard starts with the findings concerning the content and structure of the curriculum. Next, some findings on the feasibility, staff, quality assurance and facilities of the programmes are described.

Curriculum

The master programme in Biological Sciences is a two-year-programme that consists of 120 EC. Students compose their individual programme. In the first year, each track consists of obligatory courses (6-18 EC), elective courses (max 15-18 EC) and the first research project (at least 30 EC). Students may choose to conduct a literature review (12 EC), on the condition that the review is finished if the student plans to follow a major (Education, Science in Society or Science Communication) or the Tesla minor in the second year. Students who continue in the research track conduct another research project in the second year and, if not taken in the first year, the literature review. Students can also follow elective courses. Students who are about to graduate present their research project to staff and students. In some tracks, these presentations are organized in seminars that are compulsory for other students to attend. The panel agrees that such seminars are a good didactical approach of research training in a master's programme.

The *Ecology & Evolution (E&E)* track addresses fundamental and applied knowledge and research in biodiversity and ecosystem dynamics. The curriculum is delivered in close collaboration with the master's programme Ecology of the Vrije Universiteit Amsterdam. Staff members of both universities contribute to the courses and the supervision of research projects. According to the panel, this collaboration adds up to an environment in which students can learn and work on high-level research projects in the field of ecology. The track has a core of four compulsory courses, one of them being a choice of two courses. The panel studied course materials and established that these are of good quality and clearly demonstrate the master's level of this track. The course 'Masterclasses in Ecology & Evolution' provides students with insights in current research developments in this field of study, by offering lectures of different active researchers. Students prepare each masterclass by reading articles, discuss their questions with the teacher and their fellow students. After attending the masterclass they have a discussion session with the lecturer. The panel considers this a stimulating approach for students functioning in a research environment.

The *Green Life Sciences (GLS)* track offers students an integrated view on plant (a)biotic stress responses, developmental (epi-)genetics and metabolism. The core curriculum consists of three 6 EC courses, one of them being the 'Masterclasses Green Life Sciences'. This course is based on the same format as the Masterclasses in E&E mentioned above. The panel observed that the courses are based on the latest developments in plant science and relate strongly to societal issues. Students in this track participate in the Green Student Lab, where they work on research questions that are put on the agenda by organisations outside the university. The

panel considers this a *best practice* of society-driven research that prepares students well for their future professional field.

The *Limnology and Oceanography (L&O)* uniquely focuses on both freshwater and marine ecosystems. It addresses several relevant disciplines in aquatic research: aquatic and theoretical ecology, ecotoxicology, microbiology, and marine biology. The track starts with a course *Introduction to L&O*. Additionally, students take at least one of the seven electives organised by this track. The panel studied the courses of this track and concluded that they are of a high standard. The courses offer students a wide range of topics in aquatic research.

The *General Biology* track offers students the opportunity to compose their own study programme from courses and research projects in the other tracks. They take at least one introductory course of the core curriculum of one of these tracks. As there are no compulsory courses; this track intends to offer students with a broad interest in biology the corresponding freedom. The track coordinator helps students with the establishment of their study path and advises students on the coherence and feasibility of their preferred selection. The panel appreciates this opportunity for students to combine different aspects of biological sciences. In general, the quality of the courses that are offered is good. However, according to the panel it would be better if these students also jointly participate in one or two compulsory courses at the beginning of their programme, for a number of reasons. First, this offers them the opportunity to get to know the other students in this programme; community development can be conducive for study progress and success. Second, a compulsory introduction of the programme can give students an overview of new developments across the broad domain of biology, thereby addressing New Biology and helping them to choose their study path afterwards. Third, this introductory programme can give the programme a clearer profile, namely that of ‘generalist biologists’.

The first research project performed by students of any of the tracks takes place within a research group in or related to the Faculty. Students select their own topic and group based on their own interest and specialization. The student is embedded in the research group and becomes a ‘real’ member. The critical reflection refers to this practice as a master-apprentice structure. In the context of this approach, students present their work to the entire research group as part of their project. In the eyes of the panel, this master-apprentice structure allows students to acquire the necessary research experience in a setting that is both safe and challenging.

The second research project of students with a research profile is usually performed at an external institute. It is frequently performed abroad. Students choose a new topic not related to their previous project as well as a new supervisor within the faculty, who is responsible for the project. The panel considers this final project an important opportunity for students to demonstrate that they have acquired the intended learning outcomes of the programme.

The three majors and the Tesla minor offer students the opportunity to acquire knowledge and skills related to the professional field outside academia. These are all organized at faculty level, except for the Education major, which is organised by the ‘Interfacultaire Lerarenopleiding’ (Interfaculty Teaching Training Programmes, ILO). The panel is pleased to notice that with these study paths, the master’s programme offers students broader chances in preparing themselves for a professional position. Students appear to be very pleased with these specific programmes.

The panel concludes that the programme is well structured in line with what could be expected of a master's programme. It has a good balance of course work, electives and research projects. The panel suggests that a course addressing the state-of-the-art in biological research would be a good addition to the master's programme in order to provide students with a broader perspective on research in biology before or during specializing in their track. After all, master students Biological Sciences first and foremost graduate as biologists, not just on an in-depth specialisation. Furthermore, in view of the ambitions in the area of society-driven research, the programme may consider a well-defined role for the final project as an alternative for in-depth academic research.

Feasibility and study guidance

Efficiency statistics in the critical reflection demonstrate that few students succeed in obtaining their diploma within two or even within three years. Discussions during the site visit did not give the panel a complete grasp of the causes of these study delays, although one cause seems to be the amount of freedom students have in planning their programme. The panel is positive about the programme's recent decision to make track-coordinators responsible for helping students with their planning. They provide students with advice and discuss the Personal Education Plan (PEP) that students fill in. The final version of this PEP needs to be approved by the Examinations Board. Track coordinators are also responsible for approving proposals for the literature review. Students have explained to the panel that they are very pleased with this mentoring by the track coordinator and that they feel stimulated to make a good and feasible planning.

Staff

The majority of the programme is delivered by staff members from the two life science research institutes of the UvA: Swammerdam Institute for Life Sciences (SILS) and the Institute for Biodiversity and Ecosystem Dynamics. (IBED). All staff members hold a PhD. 67% of the teaching staff has a teaching qualification (BKO), around 10% is in the process of obtaining this. The quality of biological research at the UvA has been assessed as very good during the 2012 QANU Research Review Biology, as is the related research from the departments involved at the VU. Biological education and especially master's education is derived from research, and the panel established that this is delivered by excellent and active researchers. The panel concludes that the quality of the teaching staff is good.

The staff-student ratio is 1:22. According to the panel this is sufficient to realize small-scale education. Students confirm this; they mention that they appreciate the commitment and the availability of staff members.

Programme specific quality assurance and facilities

During the site visit, the panel had a conversation with the Programme Committee Biology (PC). The PC consists of a representation of staff members and students. The interview made clear that the PC is sufficiently involved in the master's programme and is monitoring the quality of education by course evaluations and panel discussions with students. The panel was pleased to note that the PC plays a proactive role in innovation of the programme. During the discussion, multiple examples have been mentioned of initiatives of the PC to improve the quality of the programme.

During the visit, the panel had a tour through some of the educational facilities. The panel was impressed by the good laboratory facilities and study- and lecture rooms. The panel also visited the green houses at the campus where very good plant research facilities are available. The panel concluded that there are good facilities for both courses and research internships.

Considerations

The panel has studied the master's programme Biological Sciences and established that the curricula of the different research tracks offer students adequate opportunities for academic specialisation. Acting as temporary members of the research group, students are well guided while developing themselves as independent researchers. The courses and research projects take place in very good research environments. The programme could be improved by adding a course that provides students from all tracks with an overview of advanced research topics in biology. This would also be a good way to give the General Biology track a more established profile of 'generalist biologists'. The panel considers the Green Students Lab of the Green Life Sciences track a *best practice* of society-driven research.

The four society-oriented specialisations provide students with a good orientation on applied sciences. They obtain complementary knowledge and skills that enable them to use their biological knowledge in business, policy, communication or education environments.

The programme uses a variety of teaching methods: lectures, case studies, field work, group assignments, literature reviews and individual research projects. According to the panel these are adequate didactic practices for a master's programme in biology. The panel established that the programme is feasible but demands good planning skills from students. They are supported in this by their track coordinator, but until now this has not resulted in timely study success rates. The programme is delivered by qualified and highly motivated staff members. According to the panel the student-staff ratio is sufficient. The Programme Committee plays a proactive role in the quality assurance of the programmes. Study and research facilities are good.

Conclusion

Master's programme Biological Sciences: the panel assesses Standard 2 as 'good'.

Standard 3: Assessment

The programme has an adequate assessment system in place.

Explanation:

The tests and assessments are valid, reliable and transparent to the students. The programme's examining board safeguards the quality of the interim and final tests administered.

Findings

Since the previous assessment in 2009, the UvA has professionalised the assessment system by setting up assessment policy frameworks and formulating the role of the Examinations Boards. These measures also apply to the Biological Sciences programme, which additionally has designed an annual Assessment Plan and Education and Examination Regulations. The Assessment Plan describes how the learning outcomes in the curriculum are tested and how testing is conducted. Each course consists of a course record and a course manual. The latter describes the objectives of the course, as well as the teaching and testing methods. *Peer-review* of tests is a standard procedure.

Starting from the academic year 2015-2016, all course coordinators prepare test matrices (Tables of Specifications or "toetsmatrijzen") that provide insight into how learning objectives are covered in the course. The assessments that have been studied by the panel are of good quality. The program uses various forms of assessments and students receive sufficient feedback on their work. The faculty has appointed an expert to assist in designing the assessment plan, course manuals and test matrices. Designing assessments is also part of the BKO training programme.

The panel is impressed with the assessment policy. The panel has learned during the interviews with teachers that the policy has also landed well in their daily teaching practice.

The panel is also positive about the assessment of master research projects. Besides the use of assessment forms, two different staff members assess projects, which enhances transparency and reliability. At the start of the project, students submit their research proposal for approval by the track coordinator. The structure and assessment of research projects and of the literature review are described in protocols. The panel concludes that with these measures, the programme ensures students to graduate with a challenging research project that serves as a good aptitude of the master's programme.

The Examinations Board is responsible for the quality of the assessment. The Examinations Board has taken a number of measures to ensure the quality of testing. Every year the Examinations Board monitors the testing of at least two courses, against the course records. The Examinations Board checks courses with a pass rate lower than 40%, as well as courses with an average grade of over 8.5. Every year, the Examinations Board conducts a sample of 10% of the reports (research projects, literature reviews, and minor Tesla results) of which an examiner appointed by the Faculty of Science, not involved in the project, gives a rating, checks for plagiarism, and examines the assessment experience of any external assessor involved. The results of this sample can be a reason to engage with examiners or the track coordinator of the project.

The panel concluded that the assessment system and its quality assurance have been given a clear and professional interpretation by both the programme management, the Examinations Board and by teachers; thus the quality of testing is properly safeguarded.

Considerations

The panel has examined whether the master's programme has an adequate assessment system in place. It has determined that the programme uses various types of assessments that match the respective learning objectives of the different programme components.

The panel concludes that the Examinations Board has established adequate procedures that safeguard the quality of testing. Furthermore, the assessment of literature reviews and research projects are well organized. The panel also concludes that proper measures have been taken to raise awareness about the assessment quality among teachers and to support them with the implementation of the assessment system.

Conclusion

Master's programme Biological Sciences: the panel assesses Standard 3 as 'good'.

Standard 4: Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.

Explanation:

The level achieved is demonstrated by interim and final tests, final projects and the performance of graduates in actual practice or in post-graduate programmes.

Findings

The achieved learning outcomes of the master's programme Biological Sciences are made insightful through the results of the second research project. To judge the quality of these projects, the panel read final reports of fourteen students from the 2013-2014 and 2014-2015 cohorts. The theses take the form of research reports or internship reports. The panel also studied the accompanying assessment forms.

The panel established that the final level demonstrated in the final reports of Biological Science students is generally high and in some cases even excellent. All students clearly demonstrate the ability to perform research at a master's level. The grades of the final products given by the examiners generally match the grades of the panel. The panel was pleased to observe that, thanks to a thorough check of each research proposal by the track coordinator, all projects have an evidently academic character, enabling students to fully show their qualities in academic research.

The critical reflection elaborates on further evidence of the final level of graduates. According to the panel, the fact that around 40% of the students contribute to publications in peer-reviewed journals, 33% of them as first author, shows the programme's good performance in terms of achieved learning outcomes. An alumni survey pointed out that 90% of the respondents succeeded in finding a qualified job. It takes them on average three months to find a job. 50% have taken a position as PhD, most of the others work in education, consultancy, non-PhD research, policy and management. The panel considers these numbers as satisfying.

Considerations

After studying a sample of final reports, the panel establishes that students realise the intended learning outcomes of the master's programmes in Biological Sciences. The final reports show an adequate and high academic level, often resulting in publication in academic peer-reviewed journals. Based on the performance of alumni the panel concludes that the programme prepares students well for an academic or business position on the labour market.

Conclusion

Master's programme Biological Sciences: the panel assesses Standard 4 as good

General conclusion

The panel concludes that the learning outcomes of the programme meet the (inter)national demands. The programme is organised in coherent and research-driven tracks that offer students good opportunities for specialisation. The panel advises that the programme, especially the General Biology track, could benefit from a generic course on advanced research topics in Biology and that the programme as a whole should consider a specific educational role for society-driven research. Staff and facilities provide for a good research environment. The panel was impressed with the assessment system in place. The final reports and performance after graduation show that the programme realises an adequate and high academic level. In line with the decision rules for limited programme assessments, the panel assesses the quality of the programme as good.

Conclusion

The panel assesses the *Master's programme Biological Sciences* as 'good'.

Appendices

Appendix 1: Curricula Vitae of the members of the assessment panel

Prof. dr. J.W. (Jan) Kijne is Professor emeritus of BioScience at Leiden University. He studied Biology in Leiden and obtained his PhD in 1979 under supervision of Prof. Ton Quispel. In his dissertation Kijne studied the symbiotic nitrogen-fixing root nodules of the pea, a theme which remained a main focus in his further research. He was Professor of Fytotechnology (in collaboration with TNO, 1994-1997), Plant Physiology (1997-2006) and BioScience (2006-2010) in Leiden, and visiting Professor of Microbiology at the University of Tromsø, Norway (1995-2000). At Leiden University Kijne also acted as programme director Biology (1996-2002), as vice-dean of the Faculty of Science holding the Education Portfolio (2002-2008), and as Academic Director of the Pre-University College (2004-2008). In 2009-2010, Kijne was chair of the panel that assessed nineteen programmes in Biology at five Dutch universities. Students elected him as a Teacher of the Year in Biology and Life Science & Technology.

Prof. dr. A.H.J. (Ton) Bisseling is Full Professor and head of the Laboratory of Molecular Biology at Wageningen University. He studied Biology in Nijmegen and obtained his PhD at the Department of Molecular Biology of Wageningen University. After holding a number of scientific positions there, he was appointed to his current chair of Molecular Biology in 1998. Bisseling is member of numerous Editorial Boards of international journals, including *Plant Biology* and *Science*. Bisseling is member of the Royal Netherlands Academy of Arts and Sciences, and member of its Council for Earth and Life Sciences.

Prof. dr. H.A. (Herman) Verhoef is Professor emeritus of Soil Ecology at VU University Amsterdam. He holds a master's grade and a PhD in Biology, both obtained at VU University, where he was appointed as Associate Professor Animal Ecophysiology in 1986. In 1992, he changed to an Associate Professorship in Soil Ecology, and was subsequently appointed as Full Professor in this specialisation in 2003. Next to his academic career, Verhoef has held a number of social positions at VU University, chairing the Advisory Board on Higher Education HOVO and the Advisory Board on Internationalisation, and acting as auditing member of several Faculty Audits.

Prof. dr. L.A.C.J. (Rens) Voeselek is Professor of Plant Ecophysiology at Utrecht University. He studied Biology at Nijmegen University, where he obtained a PhD for his research 'Adaptations of *Rumex* in flooding gradients'. After holding several scientific positions in Nijmegen, in 1999 he was appointed as Professor of Plant Ecophysiology at Utrecht University. In Utrecht, he had a number of (education) management positions: he was director of the Institute of Environmental Biology, (vice-)dean of the Department of Biology and subsequently vice-dean of the Faculty of Sciences. Voeselek has published more than 170 articles in peer-reviewed journals, including *Nature*, *Science*, *PNAS* en *Plant Physiology*.

Prof. dr. M (Maarten) Frens is Professor of Systems Physiology at Erasmus University Medical Center and Dean of the Erasmus University College in Rotterdam. Hij studied Biomedical Physics and Medical Biology at Utrecht University and obtained his PhD at Nijmegen University for his research on multisensory control of orienting movements. After holding scientific positions at ETH/University Hospital Zürich and at the Vision, Touch and Hearing Research Institute in Brisbane, Australia, in 1997 he joined Erasmus University Rotterdam. Since 2005 he holds its chair in System Physiology. Among other things, Frens has been actively involved in curriculum design of academic degree programmes. He was initiator and coordinator of the Erasmus MC Honours Class for excellent bachelor students, and contributed to the design of the curriculum of Erasmus University College, of which he became its founding Dean in 2013.

J. (Jeffrey) Verhoeff BSc. is master's student Biology and Animal Sciences at Wageningen University. In 2013, he obtained his bachelor's degree in Biology, also at Wageningen University. Verhoeff has been member of the Dutch national council of Biology students (Landelijk Overleg Biologie Studenten, LOBS) since 2013, and acts as its chair since 2015. He is member of the Board of the Dutch Institute for Biology (Nederlands Instituut voor Biologie, NIBI). Since 2012, Verhoeff has worked as student-assistant at Wageningen University, acting as teaching assistant in a number of courses and as co-organizer of Open Days for prospective students.

Appendix 2: Domain-specific framework of reference

Domain-specific framework of the masters' programme in Biology

The domain of biology concerns life and its environment: the complete integrated system of biological entities in which regulation, interaction, communication, heredity and evolution are the central concepts. The coherence and dynamics of all these entities, therefore, should be the central themes in every Biology programme. Recently (or the last two decades), biological sciences have experienced tempestuous (booming) developments that have led to a more profound understanding of the dynamics of life and the structural and functional mechanisms that lie at its basis. In this process, integration with other disciplines such as mathematics, physics, chemistry, informatics, and earth sciences has shown to be crucial. Moreover, biology has become an integral science indispensable in the practice of resolving societal issues such as sustainable food production, conservation of biodiversity and the development of "green energy" resources. Biology in the Netherlands plays a key role in the preservation and further reinforcement of the strong international position of the top sectors.

The rapid development of the biological sciences and the plethora of positions for which biologists are required, force biological educational programmes to prepare students for jobs in fundamental research, applied research and technology, communication and policy; both in biology as well as in adjacent scientific fields. More than ever, biology demands the competence to deal with the dynamics and complexity at various levels of organization, such as molecules, cells, organisms, populations, communities and ecosystems. Furthermore, students need to achieve excellent academic skills in scientific writing, oral presentation, critical reading of scientific literature, self-reflection and teamwork.

The MSc Biology covers a two-year programme, offering a deepening of knowledge in one or more biological sub disciplines in the fields of research, policy, management, communication or teaching. In each of these specialisations at least one research component is incorporated. After completion of the masters' programme, students are well equipped to follow a biologically oriented PhD trajectory or to obtain other positions of academic level related to biology.

Demands of (international) colleagues and the professional environment

Biological master programmes have a long and world-wide tradition as a central discipline. In the course of time, attention has shifted from capitalizing factual knowledge in mono-disciplines to the integration of the levels of organization and disciplines. The masters' programme aims to provide students with knowledge and skills in their specific domain and with general academic competences that will enable them to perform in an excellent manner in a broad range of professional environments. Students should be able to explain and reflect on his or her choice for a specialized PhD trajectory, or for another position at the labour market within the area of policy/administration, management, education or communication.

The institutions offering a biologically oriented MSc in the Netherlands participate in the 'Overlegorgaan Hoger Onderwijs Biologie' (Consultative Body of Higher Educational Teaching in Biology). Students are allowed to take courses within the elective part of their master programme from other Dutch biology masters' programmes. Dutch masters' programmes in biology have a good international reputation. Students with a Dutch masters' diploma can enter into all relevant international biologically oriented PhD positions.

What can be expected from a MSc Biology?

1. Knowledge and research skills

The graduate:

- a) is able to make use of the conceptual framework of the discipline in which he/she has specialized in order to explain the state of the art of developing theories and to identify the most important research issues;
- b) can systematically solve scientific problems within the context of relevant biological fields;
- c) can develop, apply and optimize research techniques in biological research;
- d) can independently formulate, initiate and execute a biological research project and analyse and interpret the results.

2. Academic and learning skills

The graduate:

- a) can report orally and in writing on the field of study for a specialist and a general audience;
- b) is able to critically reflect on the performance of him/herself and others in the professional context and to evaluate the societal and ethical consequences of biological research;
- c) can communicate effectively within the chosen field of specialisation.

Appendix 3: Intended learning outcomes

General exit qualifications MSc Biological Sciences

The graduate of the Master's programme Biological Sciences has [between brackets the most associated Dublin descriptor(s)]:

- the ability to read up on and master current scientific research developments and have knowledge of current scientific developments within relevant biological research [Knowledge and understanding];
- the analysing, problem-solving and synthesising abilities in order to deal with current scientific knowledge in biology and apply this knowledge in new and continuously changing practical situations, also in broader, multidisciplinary contexts [Applying knowledge and understanding];
- both a broad basic biological as well as specialist knowledge of one or more sub-areas of biology, as basis or opportunity for originality in developing and/or applying ideas [Knowledge and understanding];
- the ability to formulate questions on the frontline of scientific research; [Knowledge and understanding, Applying knowledge and understanding, Making judgements];
- the ability to formulate realistic and falsifiable (research) hypothesis, based on incomplete, limited or complex information and translate this into a research proposal [Knowledge and understanding, Applying of knowledge and understanding, Making judgements];
- the ability to independently set up and conduct biological experiments and field or laboratory measurements contributing to a line of research [Applying of knowledge and understanding, Learning skills];
- the skills to present research plans and results orally or written in English, at various scales and levels of abstraction, and communicate these to specialist and non-specialist audiences [Communication];
- the skills to analyse and interpret biological patterns and processes in both a qualitative and quantitative sense [Applying of knowledge and understanding];
- the ability to get acquainted with a field of study in a short period of time by self-study, to form one's own opinion and to write a critical essay in a set period of time [Making judgements];
- the ability to integrate the many hierarchical levels present in biology, and understands the interactions between biological sciences and other sciences [Making judgements];
- the ability to successfully fulfil a position in society requiring an academic qualification as an independently operating professional that has a good knowledge base and attitude towards a biological approach to relevant societal issues [Learning skills];
- an attitude that enables critical reflection [Making judgements, Learning skills].

Exit qualifications track Ecology and Evolution

In addition to the paragraph with the general exit qualifications of the MSc Biological Sciences, the student finishing track Ecology and Evolution has obtained the following track-specific qualifications:

- the ability to interpret and evaluate current state-of-the-art research on the role of ecological and evolutionary processes in nature and to start an independent research project in this direction;
- has the know-how and research experience to act as a self-directed professional in an environment where understanding of ecological and evolutionary processes is required.

Exit qualifications track General Biology

In addition to the paragraph with the general exit qualifications of the MSc Biological Sciences, the student finishing the track General Biology has obtained the following track-specific qualifications:

- the ability to interpret and evaluate current state-of-the-art research of various sub-areas of biology, and to start an independent research project in this direction;
- has the know-how and research experience to act as a self-directed professional in an environment where integrative understanding of various sub-areas of biology is required.

Exit qualifications track Green Life Sciences

In addition to the paragraph with the general exit qualifications of the MSc Biological Sciences, the student finishing the track Green Life Sciences has obtained the following track-specific qualifications:

- can describe how plants function on a physiological, genetic, biochemical and cellular level and explain how plants respond to biotic and abiotic stress;
- can illustrate how plant biotechnology (including “omics”-technologies) and plant breeding can be applied to improve traits;
- the ability to interpret and evaluate current state-of-the-art research in experimental plant sciences and to start an independent research project in this direction;
- has the know-how and research experience to act as a self-directed professional in an environment where understanding of experimental plant sciences is required.

Exit qualifications track Limnology and Oceanography

In addition to the paragraph with the general exit qualifications of the MSc Biological Sciences, the student finishing the track Limnology and Oceanography has obtained the following track-specific qualifications:

- has basic knowledge of the major physical and chemical processes that affect freshwater and marine ecosystems;
- the ability to interpret and evaluate current state-of-the-art research on the functioning of fresh water and marine ecosystems and to start an independent research project in this direction;
- has the know-how and research experience to act as a self-directed professional in an environment where understanding of freshwater and/or marine processes is required.

Exit qualifications MSc Biological Sciences combined with a major or minor

In addition to the previous paragraphs, the graduate who has chosen to do a second track-specific research project has the ability to continue his/her career either as a researcher able to pursue a PhD degree at world's best universities, as a scientist in research institutes worldwide, or as a research-skilled professional in organisation of government, civil society or business and industry.

Furthermore, the graduate who has chosen to do a major or minor as mentioned in article 1.2.5, obtains the exit qualifications as listed in the appendix of the Teaching and Examination Regulations (OER; see also appendix 4) .

Appendix 4: Overview of the curriculum

The first overview offers an overview of all compulsory, constrained-list and elective components of all tracks. The second overview contains a schematic overview of the MSc Biological Sciences and majors and minor in time.

General Foundations (42-72 EC)			
Literature Review (12 EC)			
Research Project 1 (30-60 EC)			
Research Project 2 (30-60 EC)			
Track-specific Compulsory Courses			
E&E (18 EC)	GB(6EC)	GLS (15 EC)	L&O(12EC)
Experimental Design & Analysis (6 EC)	Current Trends in Evolution (6 EC)	Biotic Interactions (6 EC)	Introduction to L&O (6 EC)
Masterclasses in E&E (3 EC)	Introduction to L&O (6 EC)	Masterclasses GLS (3 EC)	Benthic Ecosystems (6 EC)
Scientific Writing in English (3 EC)	Plant Breeding and Biotechnology (6 EC)	Plant Breeding and Biotechnology (6 EC)	Coral Reef Ecology (6 EC)
Current Trends in Evolution (6 EC)	Soil-Plant-Animal Interactions (6 EC)		Ecological Water Management (6 EC)
Soil-Plant-Animal Interactions (6 EC)			Ecotoxicology & Water Quality (6 EC)
			Experimental Design & Analysis (6 EC)
			Microbial Ecology (6 EC)
			NIOZ Marine Master Course (4 EC)
Elective Courses (max. 15-18 EC)			
Abiotic Stress (6 EC)	Developmental Biology (6 EC)	Ecosyst. Services & Sci. Advocacy (6 EC)	Environm. Genomics & Adaptation (6 EC)
Evolution of Species Interactions (6 EC)	Evolutionary Dynamics (6 EC)	Spatial Processes in E&E (6 EC)	Systems Biology in Practice (6 EC)

		Semester 1	Semester 2
YEAR 1	Regular (research) programme	Compulsory and elective courses (max. 30 EC)	Research Project 1 (30-60 EC) and/or Literature Review (12 EC)
YEAR 2		Elective courses (0-18 EC)	Research Project 2 (30-60 EC) and/or Literature Review (12 EC)
YEAR 1	Programme with major	Compulsory and elective courses (max. 18 EC)	Research Project 1 (30EC) and Literature Review (12 EC)
YEAR 2		Major Science Communication, Major Science in Society or Major Teaching (60EC)	
YEAR 1	Programme with minor	Compulsory and elective courses (max. 18 EC)	Research Project 1 (30EC) and/or Literature Review (12 EC)
YEAR 2		Research project 2 (30 EC) and/or Literature Review (12 EC)	Minor Tesla (30 EC)

Appendix 5: Programme of the site visit

26 november		
11.00	14.00	Voorbereidend overleg en inzien documenten (incl lunch)
		Gesprek met inhoudelijk verantwoordelijken:
		Dr. Maarten Boerlijst opleidingsdirecteur BSc Biologie
		Dr. Joost Duivenvoorden opleidingsdirecteur MSc Biological Sciences
		Drs. Sylvia Witteveen opleidingsdirecteur BSc Psychobiologie
		Jolanda van den Dries, MSc opleidingscoördinator BSc Biologie
14.00	14.45	Dr. Carla Blits opleidingscoördinator MSc Biological Sciences
14.45	15.00	Overleg panel
		Gesprek met bachelorstudenten Biologie
		Marjolein Michielsen jaar 2
		Marceline Mutsaerts jaar 2
		Mainah Folkers jaar 2
		Nina Witteveen jaar 2
		Daan Mangé jaar 3
		Gerben IJntema jaar 3
15.00	15.45	Lieve Oudejans jaar 4
		Gesprek met masterstudenten Biological Sciences
		Isabela Pombo Geertsma, BSc General Biology (jaar 1)
		Marleen Schuijjer, BSc Ecology & Evolution (jaar 2)
		Joseph Burant Ecology & Evolution (jaar 2)
		Eva van Zelm, BSc Green Life Sciences (jaar 2)
		Elmer Swart, BSc Ecology & Evolution (jaar 3)
15.45	16.15	Roeland van der Schoot, BSc Limnology & Oceanography (jaar 3)
16.15	16.30	Overleg panel
		Gesprek met docenten Biologie/Biological Sciences
		Dr. Hans Breeuwer UHD IBED; evolutie biologie en genetica
		Dr. Martijn Egas UD IBED; populatie biologie
		Prof. dr. Jef Huisman hoogleraar IBED; aquatische microbiologie
		Hanneke de Leeuw, MSc College of Science
		Dr. Patrick Meirmans UD IBED; experimentele plantensystematiek
		Dr. Gertien Smits UD SILS; moleculaire biologie en microbiële voedselveiligheid
		Dr. Petra Visser UD IBED; aquatische microbiologie
16.30	17.15	Dr. Martijn Rep UHD SILS; Moleculaire planten pathologie
		Gesprek met leden van de Opleidingscommissie Biologie
		Dr. Harm van der Geest voorzitter
		Dr. Christa Testerink docentlid
		Dr. Gerard Oostermeijer docentlid
		Belinda Oud studentlid BSc Biologie
		Jasper Croll, BSc studentlid MSc Biological Sciences
		Pim Post, BSc studentlid MSc Biological Sciences
17.15	17.45	Johan Diepstraten studentlid BSc Biologie

		Gesprek met alumni	
		Tom van der Meer, BSc	Alumnus Biologie
		Joram Westera, BSc	Alumnus Biologie
		Myrthe Mijnders, MSc	Alumnus Biological Sciences (Ecology & Evolution)
		Anouke de Jong, MSc	Alumnus Biological Sciences (Ecology & Evolution)
		Ruy Kortbeek, MSc	Alumnus Biological Sciences (Green Life Sciences)
		Jurrien Fransen, BSc	Alumnus Psychobiologie
		Sylvie Lesuis, MSc	Alumnus Psychobiologie
17.45	18.15	Mark Zuidberg, BSc	Alumnus Psychobiologie
19.00	21.30	diner (voorbereiden tweede dag)	
27 november			
8.45	9.00	Aankomst panel	
9.00	9.30	Inzien documenten, voorbereiden gesprekken, eventueel spreekuur	
		Gesprek met bachelorstudenten Psychobiologie	
		Joyce Blommaert	jaar 1
		Linda Wouters	jaar 1
		Inez Venderbosch	jaar 2
		Minke Blankert	jaar 2
		Heleen Tonkes	jaar 3
		Matthijs de Geus	jaar 3
		Noortje Zomer	jaar 3
9.30	10.15	Dieuwke de Waard	jaar 3
		Gesprek met docenten Psychobiologie	
		Dr. Natalie Cappaert	UD SILS; cellulaire neurowetenschappen en neurale netwerken
		Prof. dr. Paul Lucassen	hoogleraar SILS; structurele en functionele plasticiteit van het zenuwstelsel
		Dr. Steven Scholte	UHD FMG; brein en cognitie
		Dr. Heleen Slagter	UHD FMG; brein en cognitie
		Dr. Ilja Boor	Docent College of Science; moleculaire Neurowetenschappen
		Dr. Tonny Mulder	Docent College of Science; neurowetenschappen
		Jerry Struik, MSc	Docent College of Science; academische vaardigheden
10.15	11.00		
11.00	11.15	Overleg panel	
		Gesprek met leden van de Opleidingscommissie Psychobiologie	
		Dr. Martijn Egas	voorzitter; docentlid
		Dr. Wim Ghijsen	docentlid
		Dr. Romke Rouw	docentlid
		Dr. Erwin van Vliet	docentlid
		Vincent Blum	vice-voorzitter; studentlid
		Rebecca de Feijter	studentlid
11.15	11.45	Katinka den Nijs	studentlid

11.45	12.15	<p>Gesprek met leden van de Examencommissie Psychobiologie</p> <p>Dr. Taco Werkman voorzitter Dr. Annemie Ploeger lid Dr. Ir. Michiel van Wijk lid</p>
12.15	12.45	<p>Gesprek met leden van de Examencommissie Biologie</p> <p>Prof. dr. Ben Cornelissen voorzitter Dr. Ir. Rob Schuurink lid Dr. Merijn Kant lid</p>
12.45	13.15	Lunch
13.15	14.00	Rondleiding opleidingsspecifieke faciliteiten
14.00	14.30	Vorbereiden eindgesprek formeel verantwoordelijken
14.30	15.00	<p>Eindgesprek formeel verantwoordelijken</p> <p>Prof. dr. Michel Haring directeur onderwijs FNWI Dr. Jeroen Goedkoop onderwijsdirecteur College of Science Dr. Hans van der Spek onderwijsdirecteur Graduate School Life and Earth Sciences Dr. Maarten Boerlijst opleidingsdirecteur BSc Biologie Dr. Joost Duivenvoorden opleidingsdirecteur MSc Biological Sciences Drs. Sylvia Witteveen opleidingsdirecteur BSc Psychobiologie</p>
15.00	17.30	Opstellen voorlopige bevindingen
17.30	17.45	Mondelinge rapportage voorlopig oordeel

Appendix 6: Theses and documents studied by the panel

Prior to the site visit, the panel studied the theses of the students with the following student numbers:

6044883	5872480	10400400
10267573	5872855	5769442
6564542/10306323	0418668	5649889
10425330	6433588/10175288	5887135
5831423	5611164	

During the site visit, the panel studied, among other things, the following documents (partly as hard copies, partly via the institute's electronic learning environment):

Annual Reports

- Annual report Graduate School of Life and Earth Sciences
- Annual report Examinations Board
- Annual report Board of Studies
- Minutes Board of Studies
- Student curriculum evaluation

Assessment Plan

- Assessment plan MSc Biological Sciences (appendix 11 Critical Reflection)
- Alignment courses UvA
- Alignment courses VU

Course Selection: Ecological Water Management

Course Selection: Microbial Ecology

Course Selection: Plant Breeding and Biotechnology

Critical Reflection 2009 MSc Biological Sciences

- Critical Reflection: General Part
- Critical Reflection: MSc Biological Sciences
- Report NVAO

Curriculum MSc Biological Sciences

- Flow chart MSc Biological Sciences 2014/2015
- Flow chart MSc Biological Sciences 2015/2016

Folders Prospective Students MSc Biological Sciences

- Folder 2015/2016 & 2016/2017

Study Materials

- Oceanography and Marine Biology by Townsend
- Plant Physiology and Development by Taiz et al.

Research Project and Literature Review (appendix 3 Critical Reflection)

- Research Project Protocol
- Assessment Research Project
- Literature Review Protocol
- Assessment Literature Review

Teaching and Examination Regulations (appendix 4 Critical Reflection)

- Teaching and Examination Regulation 2015/2016 – Part A
- Teaching and Examination Regulations 2015-2016 – Part B
- Rules and Guidelines of the Examinations Board