Behavioural and Cognitive Neurosciences

Faculty of Mathematics and Natural Sciences,
University of Groningen

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This report was finalized on 3 February 2016

Report on the master's programme Behavioural and Cognitive Neurosciences of University of Groningen

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 Behavioural and Cognitive Neurosciences

Name of the programme:	Behavioural and Cognitive Neurosciences
CROHO number:	60615
Level of the programme:	research master's
Orientation of the programme:	academic
Number of credits:	120 EC
Specializations or tracks:	Animal and Human Behaviour Cognitive Neurosciences and Cognitive Modelling Molecular and Clinical Neurosciences
Location(s):	Groningen
Mode(s) of study:	full time
Language of instruction:	English
Expiration of accreditation:	26-09-2016

The visit of the assessment panel Behavioural and Cognitive Neurosciences to the Faculty of Mathematics and Natural Sciences of University of Groningen took place on 16-18 November 2015.

Administrative data regarding the institution

Name of the institution:	University of Groningen
Status of the institution:	legal body providing higher education
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 Behavioural and Cognitive Neurosciences of University of Groningen 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. Marieke van Ham, Professor of Biological Immunology, University of Amsterdam;
- Dr. Andries ter Maat, Research Scientist, Max Planck Institute for Ornithology;

- Dr. Maarten van der Smagt, Associate Professor 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;
- 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 assessment of the master's programme Behavioural and Cognitive Neurosciences of University of Groningen took place in the context of a cluster assessment. From June 2015 until January 2016, the panel assessed a total of twenty-three Biology programmes at seven universities.

Coordinator of the assessment Behavioural and Cognitive Neurosciences is dr. Kees-Jan van Klaveren, employee of QANU. He was present during the final meeting. In Groningen dr. Fiona Schouten, employee of QANU, acted as second secretary to the panel.

Preparation
To prepare the contents of the site visits, the coordinator first checked the quality and completeness of the critical reflection prepared by the programme. After establishing that the report met the demands, it was forwarded to the participating panel members. The panel members read the report and formulated questions and findings on its contents.

Next to the critical reflections, the panel read a selection of six theses. 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 Groningen. The time table for the visit in Groningen is included as Appendix 4.

Prior to the site visit, the panel asked the programme 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 5. The panel provided students and lecturers 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 University of Groningen 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 Groningen.

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 panel established that the intended learning outcomes of the research master's programme BCN clearly demonstrate the scientific orientation and master's level of the programme. The learning outcomes describe all aspects of functioning as an independent researcher. The panel has observed that the programme has a clear profile within the domain of neurosciences. The broad perspective on neurosciences that is established by the commitment of five faculties offers a diverse research environment. However, according to the panel, this profile and the ambitions to train excellent researchers can be expressed more clearly in the intended learning outcomes. The panel concludes that the learning outcomes are adequate but quite general.

The BCN programme consists of 120 EC, evenly spread over two years. The programme distinguishes three specializations: Animal and Human Behaviour (B-track), Cognition and Computational Modelling (C-track) and Molecular and Clinical Neurosciences (N-track). The curriculum for each track consists of the following components: introductory courses and symposia (9 EC), a colloquium and an essay or research proposal (7 EC), track specific courses (20 EC), advanced elective courses (15 EC) and two research projects (69 EC).

The panel has concluded that the learning environment of the master's programme BCN offers students great opportunities to develop themselves as independent neuroscience researchers. The research orientation of the curriculum is beyond dispute. The different curriculum elements give students a profound basis in theory and methodology in their field of specialization. General academic skills and in particular writing grant applications are trained in excellent teaching formats. During the two research projects students function as full members of a research group. The panel appreciates that half of the students carry out their final project abroad.

The curriculum is well-structured and has a nice balance of specialization in one of the tracks whilst also getting a broad perspective on and (international) network in the field of neuroscience. Cross-track symposia and peer-review procedures stimulate the exchange of ideas between students of different specializations. This interdisciplinary character is a strength of the programme. According to the panel, this could be further developed in the curriculum, for example by letting students from different tracks cooperate in assignments that are suitable for an interdisciplinary approach. The panel observed an ambitious spirit amongst students, with the cohort structure helping them in building a strong community. The selective intake procedure, solid curriculum structure, cohort-community and intensive guidance by track-coordinators altogether result in low numbers of drop-outs and study-delays.

Staff members are all active researchers and members of the national Research School for Behavioural and Cognitive Neurosciences, which was re-accredited by KNAW in 2014. Based on the recent accreditation of the research school, the reputation and recent track record of the teaching staff and the fact that students perform their final projects at universities and research institutes with a strong international reputation, the panel concludes that students are educated within an excellent research environment. According to the panel, a remarkable proof of the interwovenness of education and top-research is the fact that students contributed to a recent Vici-proposal. The ambitious and small-scale character of the programme adds to the motivation of the teaching staff to work with BCN students. The staff-student ratio is low, resulting in considerable interaction between students and lecturers. The Programme Committee plays a proactive role in the quality assurance of the programme.

The panel is impressed by the atmosphere of continuously adapting and improving the programme.

The panel has checked whether the programme has implemented an adequate assessment system. The panel has established that the programme uses diverse assessment methods that are aligned with the learning objectives of each course unit. The panel is convinced that the programme, and particularly the Board of Examiners (BoE), has installed adequate measures to monitor assessment quality. Safeguarding the quality of final research projects gets sufficient attention from examiners and the BoE. The BoE has a proactive and conscientious attitude. However, the panel concludes that the current composition of the BoE does not fully safeguard its independence and could lead to conflicts of interests. Members of the BoE are also track coordinators and members of the Admissions Board. The panel strongly advises the programme to put more efforts into avoiding the semblance of a conflict of interests.

After studying a sample of final reports, the panel has concluded that students realize the intended learning outcomes of the master's programme in Behavioural and Cognitive Neuroscience. The achieved level in the final research internships is high, students demonstrate good research qualities in their work. This results remarkably often in publication in peer reviewed journals. According to the panel, this shows the success of the research orientation of the programme and of the small-scaled and well-balanced curriculum.

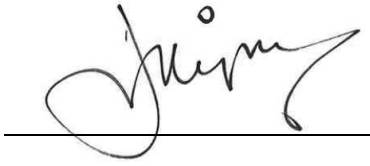
Based on the performance of alumni the panel concludes that the programme prepares students very well for an academic career. The vast majority of the graduates obtains a PhD position, most of them right after graduation. The panel perceived that the programme succeeds in its ambition to foster passion for neuroscience in their students.

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

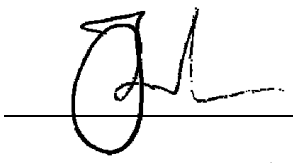
Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	excellent
Standard 3: Assessment	satisfactory
Standard 4: Achieved learning outcomes	excellent
General conclusion	excellent

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: 3 February 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 Behavioural and Cognitive Neurosciences (hereafter: BCN) is organized by the Research School for Behavioural and Cognitive Neurosciences. The BCN Research School operates at the interface between five faculties of the University of Groningen: the faculties of Mathematics and Natural Sciences, Medical Sciences, Behavioural and Social Sciences, Arts, and Philosophy. The faculty of Mathematics and Natural Sciences acts as secretary, the programme is formally organised by the Graduate School of Science from this faculty. The Graduate School of Science has a board and a Director. The Director reports to the Faculty Board. The deputy-director is in charge of the daily management of the programme, together with the programme coordinator. Each of the three tracks of the programme has a track-coordinator who functions as the contact person for students for programme related issues. The programme has its own Board of Examiners (BoE) and Programme Committee (PC).

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 master's programme BCN aims to provide a thorough specialist training in the theoretical basis and state-of-the-art methods of one of the three fields of behaviour, cognition and molecular and clinical neurosciences. Simultaneously it aims at providing graduates with an interdisciplinary outlook on the research area. As described in the critical reflection, the programme intends to train the student to reach the highest cognitive levels of application, analysis, synthesis and evaluation, which are required for a successful research career. On top of the intended learning outcomes, the programme aims to spark passion for neuroscience among its students, as a crucial driver for a successful career in this research area.

The programme includes the following specializations:

- B-track: Animal and Human Behaviour;
- C-track: Cognitive Neurosciences and Cognitive Modelling;
- N-track: Molecular and Clinical Neurosciences.

The programme has formulated 23 learning outcomes (see Appendix 2). These are clustered according to the international Dublin Descriptors for academic master's programmes. The learning outcomes stress the capabilities necessary to perform independent research. The panel observed that the master's level and scientific orientation are reflected adequately in the learning outcomes.

The critical reflection also describes that, in order to prepare students for a research career, the programme aims to train students in obtaining research grants and strives to provide them with a network of (future) colleagues that can offer support in their scientific work. The panel

thinks these are valuable tools for graduates of a research master's programme. Unfortunately, the panel did not observe an adequate translation of these aims into the intended learning outcomes of the programme.

The programme has described a comparison with other neuroscience master's programmes in the Netherlands and abroad. Although such programmes are numerous, the programme in Groningen distinguishes itself in the multidisciplinary approach and the broad range of neuroscientific subdomains represented by the five Faculties that are involved in the programme. Especially the substantial attention for behavioural neuroscience is a distinctive feature. The interdisciplinary orientation of the programme is an interesting profile, according to the panel. The panel encourages the programme to make this unique profile more explicit in the intended learning outcomes.

Considerations
The panel established that the intended learning outcomes of the research master's programme BCN clearly demonstrate the scientific orientation and master's level of the programme. The learning outcomes describe all aspects of functioning as an independent researcher. The panel has observed that the programme has a clear profile within the domain of neurosciences. The broad perspective on neurosciences that is established by the commitment of five Faculties offers an interdisciplinary research environment. However, according to the panel, this profile and the ambitions to deliver excellent researchers are not clearly expressed in the intended learning outcomes. The panel concludes that the learning outcomes are adequate but quite general.

Conclusion
Master's programme Behavioural and Cognitive Neurosciences: 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 BCN. The panel has read course materials, reports of relevant committees and study information on the digital learning environment Nestor. This standard starts with the findings concerning the content and structure of the curriculum. Next, a short description of the teaching methods of the programme is presented. Special attention is given to the academic context in which students function. Finally, some findings on the feasibility, staff, quality assurance and facilities of the programmes are described.

Curriculum

The BCN programme is a two-year programme and consists of 120 EC. Appendix 3 shows an overview of the curricula of each of the specializations in the programme: Animal and Human Behaviour (B-track), Cognition and Computational Modelling (C-track) and Molecular and Clinical Neurosciences (N-track).

The B-track focusses on evolution, function, causation and development of behaviour. Particular emphasis is put on evolutionary psychology to help understand aspects of human behaviour, its development, and its constraints and plasticity. Courses in this track pay attention to timing of behaviour, function and evolution of behaviour, the neuroendocrine basis of behaviour and individuality of behaviour.

In the C-track students study and model cognitive processes. They obtain a basis in information-theoretical analyses in courses on models of cognition and computational modelling. Students gain hands-on experience in using neuroimaging techniques such as EEG and fMRI, receive training in advanced statistics as well as the development and use of formal approaches to modelling cognition and neural mechanisms of information processing.

Courses in the N-track focus on molecular mechanisms of brain function and on the neuropathology of disease. The curriculum includes lectures on neurodegenerative and psychiatric diseases, neuro-inflammatory processes and stem cell biology and emphasizes the anatomy of the nervous system, neurotransmission and transduction cascades, neurophysiology, neuro-pharmacology and neuropathology.

As mentioned in Standard 1, the programme has the objective to offer students specialized knowledge in a subdomain of the neurosciences and at the same time familiarize them with a broad perspective on the whole research domain. As a consequence, the curriculum consists of track -components as well as joint activities:

- Introduction courses and symposia (9 EC)
- Colloquium and essay or research proposal (7 EC)
- Track specific courses (20 EC)
- Advanced elective courses (15 EC)
- Two research projects (69 EC)

The first two components are organised for all BCN students. In the introduction courses students are introduced to the different research topics in neurosciences, especially those present at the BCN Research School. They are also trained in generic academic skills: ethical aspects of research, writing grant proposals and time management. In their second year, students put this into practice by writing an essay, which may take the form of a research proposal. In the Career Related Topic course (year 1) students are trained to write a research proposal about the topic of their minor project. During this course they review each other's proposals. They do so in teams across tracks, by which the programme stimulates them to write for a broad scientific audience and to train their capacity to understand the approaches in other neuroscience areas. The timing of this course is synchronized with the NWO Talent programme deadline, so that students can prepare an application during their studies and, in case of a successful application, start with their PhD project right after graduation. Some applications that did not get NWO-funding were accepted by the University of Groningen. The panel considers this an excellent approach of preparing students for a career in research.

The colloquium and symposia are joint activities as well. In these meetings, students of all tracks present their essays and research projects to each other. These meetings stimulate students to integrate ideas from the different subfields in their projects. In its conversations with students and alumni, the panel observed that these events are highly valued, since the students exchange ideas and get broader perspectives on neuroscience research. According to the panel, the colloquium and symposia seem to be fulfilling the objective of enabling students to relate the insights of their own track to developments in the other specializations. They give substance to the interdisciplinary character of the programme.

This exchange between tracks could be further developed in the programme, according to the panel. Its suggestion to let students collaborate in interdisciplinary projects or assignments was received positively by students and teachers. Students remarked that this should not be one of the research projects, as they wish to retain their freedom to specialize in a subject that they are passionate about. But they agreed that collaboration in smaller projects would be a useful and interesting way of combining the knowledge and methods from the different tracks.

Within each track, students participate in four specializing courses. The panel studied some of these courses and concluded that they provide students with in-depth and state-of-the-art knowledge in their field of studies and that students get acquainted with the necessary research methods. The set of courses per track is coherent and provides students with a good overview of their subfield. Lecturers integrate the results and progression from their own line of research in their lectures, thereby guaranteeing that students are familiarized with the latest insights in their specialization.

In their research projects, students apply the research methods from the track-specific courses. The first project, the minor thesis, is of a formative nature: the primary objective is that students practice all stages of research, rather than adding new scientific insights. Students get intensive supervision. In their second research project, the major thesis, students work much more independently. The result of this project should be of the quality of a paper in a peer reviewed journal. Students can choose to go abroad for their major thesis. In the critical reflection, it is mentioned that approximately half of the students actually do so. For both research projects, students need to write a project proposal. The track coordinator assesses the first draft of the proposal and gives feedback. The second version should be approved by the Board of Examiners. All students present the results of their projects at the

BCN symposia, by plenary or poster presentations. Students are very satisfied with the level and frequency of guidance from their supervisors and with the amount of freedom to choose and organize their projects. In its discussion with students, the panel perceived that they are very passionate about their research projects. In that way, the programme realises its main target. The panel is impressed by the assertiveness and dedication demonstrated by students.

The panel concludes that the curriculum is coherent and well-balanced. It has a clear structure, planning and sequence. The curriculum enables students to realize the intended learning outcomes. The balances between compulsory and elective parts, between specialization and interdisciplinarity and between structure and freedom all seem to be well equilibrated.

Admission, study guidance and feasibility
The BCN research master's programme has a selective admission policy. Students can apply with a letter of motivation, support letters and their grades from a bachelor's degree in a relevant field. Applications are judged by the Admissions Board. As passion for neuroscientific research is an important criterion next to proven quality at bachelor's level, there is not a demarcated set of standard admission rules. The Admissions Board considers each application, on the basis of the candidates' previous study results, the composition of his/her bachelor's programme and his/her motivation to participate in one of the three tracks. Approximately one third of the applicants is admitted. Each cohort consists of around 30 students, a quarter of them coming from abroad.

The programme is solidly structured and all deadlines are aligned. Students can find information on all courses and assessment procedures on Nestor. As a result of the strict structure and deadlines, almost all students who graduate do so within two years. The drop-out rate is around 10 per cent. The panel considers these good results for a master's programme.

During their education, students function in a cohort structure. Each track has a dedicated office in one of the Faculties where students meet and work together. As tracks consist of around ten students per cohort, community-building is easily established. The panel perceived that students work together closely in their tracks and that there is an ambitious atmosphere among students. Interaction between tracks is less frequent, students meet in the general courses and the symposia.

Each track has a coordinator who acts as the daily contact person for students in their track. They discuss with students how they wish to design their personal study-path by choosing electives and research projects that match their interests and the requirements of the programme.

Staff and academic context
All members of the BCN master's programme teaching staff are active scientists in one of the research areas of behavioural and cognitive neurosciences. The BCN research school has been re-accredited in 2014 by a KNAW Committee based on the ECOS protocol for accreditation of research schools. The participation of the staff members in the BCN research school makes sure that they can put their own research line in the perspective of the interdisciplinary domain of the neurosciences. Although not all underlying participating research groups have been assessed as excellent over the past few years, it is clear to the panel that students are part of a highly driven and committed research environment. The reputation and recent track record of the teaching staff is very good. According to the panel, a

remarkable proof of the interwovenness of education and top-research is the example of students who actually contributed to a recent vici-proposal of one of the staff members.

All lecturers who teach in obligatory course units have a Ph.D., approximately 38% are tenured. In 2015 81% of staff lecturing within the mandatory course units will have received their university teaching qualification (UTQ, in Dutch 'Basis Kwalificatie Onderwijs' (BKO)), which is in line with the university's ambition to have 80% of staff UTQ-certified by the end of 2015. The staff:student ratio is between 1:16.5 for the B-track and 1:18.7 for the C-track (N-track 1:16.7). The panel concludes that this is a favourable ratio that enables a small-scale and interactive learning environment.

Students are truly integrated in the research groups and staff members show much commitment and enthusiasm for working with the BCN students. This became clear from the conversations the panel had with teachers, students and alumni. The small scale of the programme ensures the interactive character of lectures and the direct contact between students and lecturers. The panel has studied the curricula vitae of the staff members involved in the programme and concluded that they are all prominent and active researchers in one of the BCN specializations.

As described before, students are actively trained in all aspects of a research career: preparing, carrying out and presenting research projects, writing essays on emerging research topics, writing grant applications and peer reviewing. Beyond doubt, the students function well in an academic and stimulating context during their studies, the panel concludes.

Specific teaching facilities and quality assurance
The panel met with the Programme Committee (PC) BCN during the site visit. The interview made clear that the PC is highly involved in the master's programme and is continuously monitoring the quality of education by course evaluations. It has installed a BCN-specific evaluation system, matching the small scale of the programme. Every course is evaluated each year with a BCN-specific evaluation form. The results are discussed in a meeting between students and a student-member of the PC. A summary of this discussion is signed by one of the students present. Next, this summary is discussed with the teacher and finally during a PC meeting the PC draws a conclusion on any improvements that could be made. If appropriate, they discuss this with the deputy-director of the programme. In one extreme case this led to a replacement of a teacher. But in most cases, improvements are already in progress before the formal evaluation process is finalized. To formalize this process, the PC has now started to send a written version of the conclusions of evaluations to the staff members involved.

Not only the PC, but all students appear to be very much involved in contributing to improvements of the programme. Whenever they feel the need for additional training on an emerging topic, they discuss this directly with staff members. This can be realized in the next academic year, either as a new elective or as an additional subject within an existing course. The PC elaborated on an example of a course on membrane biology that has been organized as a result of student initiatives. Currently, there is a discussion on additional statistics training. The panel is confident that students and staff will come to an adequate conclusion in this matter and concludes that the direct interactions between staff and students on the continuous improvement of the curriculum are a unique feature that could serve as good practice for research masters elsewhere.

In general, the panel concludes that the PC has a very proactive and dedicated attitude towards the quality of the programme and that the programme has realized a spirit of

ongoing improvement under students and staff. The fact that the programme is organized by five Faculties does not in any way seem to impede the flexibility of the programme.

During the visit, the panel had a tour through some of the educational facilities. It observed that at the academic hospital (UMCG) students from the N-track have adequate laboratory facilities to perform clinical research. As described in the critical reflection, and confirmed by students, they have their own office per track. Research facilities including fMRI, EEG, microscope imaging equipment, technical support and laboratories for neuropsychological research are available for students. The panel concludes that the facilities are adequate to perform different types of neuroscientific research.

Considerations

The panel has established that the learning environment of the master's programme BCN offers students great opportunities to develop themselves as independent neuroscience researchers. The research orientation of the curriculum is beyond dispute. The different curriculum elements provide students with a profound basis in theory and methodology in their field of specialization. General academic skills and in particular writing grant applications are trained in excellent teaching formats. In the two research projects students function as full members of a research group. The panel appreciates that half of the students execute their final project abroad.

The curriculum is well structured and has a nice balance of specialization in one of the tracks whilst also obtaining a broad perspective on the field of neuroscience and building a network in this field. Cross-track symposia and peer-review procedures stimulate the exchange of ideas between students of different specializations. This interdisciplinary character is a strong feature of the programme. According to the panel, this could be further developed in the curriculum, for example by letting students from different tracks cooperate in assignments that are suitable for an interdisciplinary approach. The panel observed an ambitious spirit amongst students, with the cohort structure helping them in building a strong community. The selective intake procedure, solid curriculum structure, cohort-community and intensive guidance by track-coordinators results in low numbers of drop-outs and study-delays.

Staff members are all active researchers and members of the national Research School for Behavioural and Cognitive Neurosciences, which was re-accredited by KNAW in 2014. Based on the recent accreditation of the research school, the reputation and recent track record of the teaching staff and the fact that students perform their final projects at universities and research institutes with a strong international reputation, the panel concludes that students are educated within an excellent research environment. According to the panel, a remarkable proof of the interwovenness of education and top-research is the example of students who contributed to a recent vici-proposal. The ambitious and small-scale character of the programme adds to the motivation of the teaching staff to work with BCN students. The staff-student ratio is low, students have considerable interaction with lecturers. The Programme Committee plays a proactive role in the quality assurance of the programme. The panel is impressed by the atmosphere of continuously adapting and improving the programme.

Conclusion

Master's programme Behavioural and Cognitive Neurosciences: the panel assesses Standard 2 as ' excellent'.

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

In 2013 the Faculty of Mathematics and Natural Sciences has adopted its current assessment policy. This policy states among other things that all programmes within the faculty should have an assessment plan. The assessment plan of the BCN master's programme is included in the critical reflection. This plan defines the learning objectives of the programme, the assessment modes, the appointed examiners and the relationship between curriculum components and the intended learning outcomes.

The panel considers this assessment plan as a good instrument to create transparency and overview of the assessment system of the programme. It has observed that the matrix that relates the curriculum components to the intended learning outcomes is very dense: according to this table, each component is supposed to attribute to a lot of learning outcomes. The panel is afraid that this could give the impression that course components lack focus. It suggests the Board of Examiners to determine whether the distribution of learning outcomes over the different courses could be specified better.

The assessment policy also states that for each course, the responsible lecturer needs to write a Course Unit Assessment Overview (CUAO). This CUAO describes the relationship between the course content, learning objectives, assessment mode and the final qualifications. Students have access to relevant information from the CUAO's in the online study guide. The faculty has hired an assessment expert to support teachers in writing their CUAO's. The panel is positive about this professionalization of the assessment system.

The Board of Examiners (BoE) comprises the three track coordinators and these members also form the Admissions Board. The programme coordinator functions as secretary of the BoE. The BoE needs to approve all research project proposals. It also reviews the assessments of around 50 per cent of the minor and major theses. The panel has questioned the independent position of the BoE. Track coordinators are members of the Admissions Board and they are very involved in the programme and have close contact with students. In their discussion with the panel, the BoE explained that the small scale of the programme makes it hard to prevent double roles. In their opinion, the intersubjective approach in their discussions makes sure that track coordinators are not judging students from their own track and that similar grading is applied between the tracks. However, the panel keeps to its conclusion that the BoE needs a protocol or composition that better safeguards its independence and prevents conflicts of interests.

The panel is positive about the actions the Faculty and the BoE have undertaken in order to safeguard assessment quality. From its conversation with the BoE, the panel concludes that the BoE has elaborated on its legal responsibilities in adequate procedures and guidelines. The BoE demonstrates a clear vision on its role and on the implementation of their responsibilities.

The panel has studied the assessment plan and established that the programme uses a variety of assessment methods, adapted to match the different learning objectives. The courses are

usually tested with an examination, often combined with individual assessments or group assignments, written essays or oral presentations. Symposia and joint introduction courses are tested by oral presentations, active participation in discussions and by writing a report. All students receive elaborate feedback on their work. For theses and colloquia, standard assessment forms are designed.

Safeguarding the quality of the research projects is realized by several measures. At the beginning of the research projects, students write a project proposal that needs to be approved by the supervisor and the track coordinator. All research projects are assessed with an assessment form by the supervisor. Assessment criteria are the scientific quality of the research, management of research, the quality of the final presentation in the research group and the quality of the report. The second assessor gives a written comment on the final assessment. In case of an international research project, the examiner from the RUG has the final saying in the grading. The panel concludes that these are adequate measures to safeguard the final level of students. Additionally, the panel advises to make a plagiarism scan standard procedure for all theses.

Considerations
The panel has checked whether the programme has adopted an adequate assessment system. The panel has established that the programme uses diverse assessment methods that are aligned with the learning objectives of each course unit. The panel is convinced that the programme, and particularly the Board of Examiners (BoE), has installed adequate measures to monitor assessment quality. Safeguarding the quality of final research projects gets sufficient attention from examiners and the BoE. The BoE has a proactive and careful attitude. However, the panel concludes that the current composition of the BoE does not fully safeguard its independence and could lead to conflicts of interests because members of the BoE are also track coordinators and members of the Admissions Board. The panel strongly advises the programme to put more efforts into avoiding the semblance of a conflict of interests.

Conclusion
Master's programme Behavioural and Cognitive Neurosciences: the panel assesses Standard 3 as ' satisfactory'.

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 master thesis of the second research project illustrates the level achieved in the master's programme. Prior to the site visit, the assessment panel has selected and studied six final reports. The selection procedure is described in the paragraph 'Working method of the assessment panel', at page 6 in this report.

The quality of neuroscience research in Groningen is considered as very good. BCN education is derived from research, and the programme adopts corresponding quality standards in education. The panel has observed that the final products demonstrate a high level and in some cases even an excellent level. In their reports, students show that they reach a level of performing scientific research to be expected in a high-quality research environment, preparing them well to start a PhD. The grades of the final products given by the examiners match the grades of the panel. Almost half of the students contribute to publications in peer reviewed journals, quite often as first author. According to the panel, this shows the programme's excellent performance in terms of achieved learning outcomes.

The level achieved by graduates is also demonstrated by their performance upon graduation. Approximately 80% of graduates have taken a position as a PhD, which should be considered a very high number, according to the panel. Several students and alumni point out that they have obtained a PhD grant or another PhD position even before graduating. Also, staff members mention that they receive requests from other universities for BCN students to apply for PhD positions.

During the site visit, the panel had a conversation with a number of alumni, who appear to be very satisfied with their education, and felt well prepared for a job as a researcher. They point out that they still have close contact with their cohort and that they feel that they have acquired a strong network of peers they can consult for feedback on their work. The panel concludes that the master's programme is a very good preparation for an academic career.

Considerations

After studying a sample of final reports, the panel established that students realize the intended learning outcomes of the master's programme in Behavioural and Cognitive Neuroscience. The achieved level in the final research internships is high, students demonstrate good research qualities in their work. According to the panel, this high quality of the reports and the fact that they often lead to publication in peer reviewed journals demonstrate the success of the research orientation of the programme and of the small-scaled and well-balanced curriculum.

Based on the performance of alumni the panel concludes that the programme prepares students very well for an academic career. The vast majority of the graduates obtains a PhD position, most of them right after graduation. The panel perceived that the programme succeeds in its ambition to foster passion for neuroscience in their students.

Conclusion

Master's programme Behavioural and Cognitive Neurosciences: the panel assesses Standard 4 as excellent

General conclusion

The panel concludes that students in the master's programme BCN are trained in an excellent, small-scale research environment. The curriculum is well-balanced and continuously improved and students are very actively contributing to the programme quality. This results in good final research reports, a very high percentage of succesfull PhD students and numerous publications in peer reviewed journals. The programme is ambitious and succeeds in realizing its aim to foster passionate neuroscientists. This can be translated more clearly in the intended learning outcomes. The assessment system is well-organized. However, the Board of Examiners needs a more independent position. In line with the NVAO decision rules, the panel concludes that the learning environment and the realized final level justify the conclusion that the programme is excellent.

Conclusion
The panel assesses the *Master's programme Behavioural and Cognitive Neurosciences* as 'excellent'.

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. S.M. (Marieke) van Ham is Professor of Biological Immunology at the University of Amsterdam and Head of the Department of Immunopathology at Sanquin Blood Supply, Amsterdam. She studied Medical Biology at the University of Amsterdam, where she subsequently obtained a PhD for her research on bacterial vaccin components. After a number of scientific positions at the Imperial Cancer Research Fund in London, the Netherlands Cancer Institute in Amsterdam and VU University Medical Center Amsterdam, she joined Sanquin in 2003. In 2005 she was appointed Head of the Department of Immunopathology, with a staff of about 60 people. She occupies her current chair in Biological Immunology at the University of Amsterdam since 2010. In that capacity, she designs and coordinates immunology curricula for the bachelor's and master's programmes Biomedical Sciences.

Prof. dr. M.J. (Joost) Teixeira de Mattos is Professor of Quantitative Microbial Physiology at the University of Amsterdam and co-founder of Photanol BV. Teixeira de Mattos studied Chemistry at the University of Amsterdam, and obtained his PhD in Chemistry there in 1984. He has held a number of scientific positions before being appointed as Full Professor in 2007. Throughout his career, Teixeira de Mattos has been actively involved in education, teaching subjects in biochemistry, microbiology and biotechnology in programmes ranging from Chemistry to Computer Science. He received the Dupont Award for Higher Education, was chosen by students as Teacher of the Year in Chemistry (twice) and in Biology. Teixeira de Mattos has also been member of the Education Advisory Boards in Chemistry and Biology/Biotechnology and of the Boards of Examiners in Chemistry 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.

Dr. M.J. (Maarten) van der Smagt is Associate Professor at the Experimental Psychology division of the Faculty of Social and Behavioural Sciences at Utrecht University. He studied Biology at Utrecht University, where in 1999 he obtained his PhD (cum laude) for his research on *Integration and segregation mechanisms of human motion vision*. He was post-doctoral research associate at the Vision Center Laboratory of the Salk Institute for Biological Studies in La Jolla, California (U.S.) until his appointment as Assistant Professor at the Experimental Psychology division in Utrecht (2002). In 2012 he was promoted to Associate Professor. Van der Smagt was member of the Education committee of the Helmholtz Research School for Brain and Cognition, and coordinator of the PhD-programme Cognition and Behaviour at the Graduate School for Life Sciences. In his current position, his duties include educational management and coordination. Among other things, he is co-director of the master's programme Artificial Intelligence and Education Coordinator of the Experimental Psychology division.

Dr. A. (Andries) Ter Maat is research scientist and group leader Neurophysiology of the Departement of Behaviour Neurobiology at the Max Planck Institute for Ornithology in Seewiesen (Germany). He studied Biology at VU University Amsterdam, where he also obtained a PhD in Neurosciences. After a position as researcher at ZWO (predecessor of the Netherlands Organisation for Scientific Research NWO) and several scientific positions at VU University, he was appointed in his current position at the Max Planck Institute in 2005. Ter Maat is well experienced in academic education, both in the Netherlands and Germany. In Seewiesen he currently teaches in courses at master level and supervises master graduates and PhD Candidates.

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: Intended learning outcomes

Learning outcomes of the BCN research master programme	Dublin descriptors
Students have acquired a. a broad overview of important contemporary issues in the area of behaviour, cognition, and neurosciences. b. specialized knowledge in one of the three subfields of behaviour, cognition or neurosciences. c. understanding of the need for multidisciplinary approaches and appreciation of the complexity of the brain. d. the capacity to listen to and understand approaches in the other fields, such that they develop a broader, integrated view to the complex problems emerging. e. experience with modern techniques and research approaches. f. knowledge of experimental designs and statistical models. g. a positive critical attitude in the evaluation of scientific results, views and concepts.	**Knowledge and understanding** Students have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor's level, and provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context.
Students have demonstrated the ability h. to apply specialised knowledge in one of the three subfields of behaviour, cognition or neurosciences. i. to approach scientific problems within the field in a multidisciplinary setting and to appreciate the complexity of the brain. j. to listen to and understand approaches in the other fields, such that they develop a broader, integrated view to the complex problems emerging. k. to apply modern techniques and research approaches. l. to apply knowledge of experimental designs and statistical models. m. to evaluate scientific results, views and concepts with a positive critical attitude	**Applying knowledge and understanding** Students can apply their knowledge and understanding, and problem-solving abilities in new or unfamiliar environments within broader (or multi-disciplinary) contexts related to their field of study.
Students have demonstrated the ability n. to conduct scientific research, taking into account the limitations of available information and scientific problems in behaviour, cognition and neuroscience. o. to obtain an overview of the core issues in a scientific area in a short period of time p. to reflect on the social and ethical responsibilities linked to the application of their knowledge and judgements.	**Applying knowledge and understanding** Students can apply their knowledge and judgements.
Students have demonstrated the ability q. to present scientific research in written and verbal form, taking into account the limitations of their conclusions.	**Communication** Students can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.

Students have demonstrated r. the skills required for further study in a largely self-directed or autonomous manner s. to have an efficient time management. t. to recognize the need for, and an ability to engage in, ongoing learning. u. to have an understanding of the requirements for a successful scientific career and the ability to judge whether he/she fulfills these requirements. v. to have acquired a general work orientation that is required for participation in a research team, contributing to collective goals, effective time management, and participation in a research network. w. to understand and respect guidelines of scientific integrity.	**Learning skills** Students have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.

Appendix 3: Overview of the curriculum

Overall programme:

Module	ECTS	Entry requirements	Comments
Introduction to BCN	4	-	
Career related topics	3	-	
Colloquium	3	-	
Track specific modules	20	-	
Minor research project	29	-	
Summer symposium I	1	Minor thesis	Students are required to participate twice in the summer symposium: Once after the minor research project and once after the major research project.
Optional modules	15		Modules from the list in appendix D. Students in the second year choose three of these modules. Entry requirements may differ per course unit.
Essay	4	-	Alternatively student are allowed to write a research proposal
Major research project	40	Minor thesis	
Summer symposium II*	1	Major thesis	Students are required to participate twice in the summer symposium: Once after the minor research project and once after the major research project.

Track-specific modules:

B-track (20 ECTS)

Module	ECTS	Entry requirements	Comments
Timing of behaviour	5	-	-
Function and evolution of behaviour	5	-	-
The neuroendocrine basis of behaviour	5	-	-
Individuality of behaviour	5	-	-

C-track (20 ECTS)

Module	ECTS	Entry requirements	Comments
Models of cognition	5	-	-
Functional neuroscience C track	5	-	-
Elective module	5		Module from the "elective modules C-track" list. Students from the C-track choose one of these modules.
Repeated Measures	5	-	-

N-track (20 ECTS)

Module	ECTS	Entry requirements	Comments
Functional neuroscience N track	5	-	-
Pathology of the nervous system	5	-	-
Molecular and cellular neuroscience	5	-	-
Stem cell and glia biology	5	-	-

Elective modules C-track

Module	ECTS	Entry requirements	Comments
Cognitive modelling: Basic principles and methods	5	-	-
Cognitive neuropsychiatry	5	-	-
Molecular and cellular neuroscience	5	-	-

Electives: 'core modules'

Module	ECTS	Entry requirements	Comments
Behavioural pharmacology	5	-	-
Human neuroanatomy	5	-	-
Philosophy of neuroscience	5	-	-
Auditory and visual perception	5	-	-
Membrane Biology and Disease	5	-	-

Electives: Modules organised by the Faculty of Mathematics and Natural Sciences

Module	ECTS	Entry requirements	Comments
Advanced self-organisation of social systems	5	-	-
Animal and human experimentation	5	-	Module can be only followed as part of the minor or major project.
Language modelling	5	-	-
User models	5	-	-
Machine learning	5	-	-

Electives: Modules organised by the Faculty of Medical Sciences

Module	ECTS	Entry requirements	Comments
Current themes in inflammation and cancer	5	-	-

Electives: Modules organised by the Faculty of Behavioural and Social Sciences

Module	ECTS	Entry requirements	Comments
Current topics of intergroup relations in society	5	-	-
Boundaries of psychology	5	-	-
Multivariate Models	5	-	-

Electives: Modules organised by the Faculty of Arts

Module	ECTS	Entry requirements	Comments
Natural language processing	5	-	-

Appendix 4: Programme of the site visit

Maandag 16 november			
8.45	9.00	**Aankomst panel (Linnaeusborg):** De heren M.H.K. Linskens en L.P.W.G.M. van de Zande	
9.00	12.30	Voorbereidend overleg en inzien documenten, lunch	
12.30	13.00	**Gesprek met inhoudelijk verantwoordelijken Biologie-opleidingen** Adjunct-directeuren: de heren L.P.W.G.M. van de Zande, B.D.H.K. Eriksson, J. Kok Opleidingscoördinatoren: de dames M. van Rijssel en G. Vasse Studieadviseur: mevr. C.E.M. Weel	
13.00	13.30	**Gesprek met inhoudelijk verantwoordelijken Medisch-biologische opleidingen** Adjunct-directeuren: dhr. P. de Vos, mevr. G.M.M. Groothuis Opleidingscoördinatoren: mevr. A. Kohl-Menage Coordinator Science, Business & Policy profile: dhr. G.J.W. Euverink Studieadviseur: dhr. W.N. van Egmond	
13.30	14.00	**Gesprek met inhoudelijk verantwoordelijken Behavioural and Cognitive Neurosciences.** Adjunct-directeur: dhr. D.G.M. Beersma Opleidingscoördinator: mevr. I.A. Neven Studieadviseur: mevr. R.M. van der Kaaij	
14.00	14.15	Overleg panel	
14.15	15.00	**Gesprek met studenten bacheloropleiding Biologie** Mevr. W.E.A. van Guldener Mevr. C.H. Lijcklama a Nijeholt Mevr. J.R. Smit Dhr. E.S. van Haeringen Mevr. A.W. Jager	**Gesprek met studenten bacheloropleiding Life Science and Technology** Mevr. I. Frentz Mevr. V. Snippe Mevr. L.M. Wesselink Dhr. J.H.D. de Boer Dhr. S. Dantuma
15.00	15.30	Overleg panel	
15.30	16.15	**Gesprek met docenten beide bacheloropleidingen** Dhr. B. Buwalda Mevr. J. Falcao Salles Dhr. M.H.K. Linskens Dhr. R. Gosens Dhr. G.J. Verkerke Dhr. P. Heeringa	
16.15	16.30	Overleg panel	
16.30	17.15	**Gesprek met studenten research master BCN** Mevr. L. de Wit Dhr. M.T. Egle Mevr. J. Akkerman Mevr. M.J. de Boer Mevr. L. Nothdurft	**Gesprek met studenten M Biomedical Sciences, Medical Pharmaceutical Sciences** Mevr. C.E. Hoeve Mevr. A. Asselman Dhr. M. Pratt Dhr. T. Schut Mevr. J.A. Reurink Mevr. S. Mavrova Mevr. J.E.M. Linneman Mevr. B.H. Troost
17.15	18.00	**Alumni BCN** Mevr. A.S. Ramsteijn Mevr. T. Buwalda Mevr. M. Koopman Mevr. S. Conroy Dhr. F. Sense Mevr. T. Beking	**Overige Alumni** Dhr. M.A. Schenkel Dhr. T.A. Middelburg Dhr. C.P.M. Goedegebure Mevr. M.B.G. Kiewiet Mevr. V.Y. Starokozhoko Mevr. S.A. Zwarthoff
18.30		Diner panel	

Dinsdag 17 november			
8.45	9.00	Aankomst panel	
9.00	9.45	Inzien documenten, voorbereiding gesprekken	Spreekuur
9.45	10.30	**Gesprek met docenten research master BCN** Dhr. H.W.G.M. Boddeke Dhr. D.H. van Rijn Dhr A. Sarampalis Mevr. M.E. Maan	**Gesprek met docenten M Biomedical Sciences, Medical Pharmaceutical Sciences** Dhr. G.J. Poelarends Mevr. I.A.M. de Graaf Dhr. R.P.H. Bischoff Mevr. M.M. Faas Dhr. J.A.A.M. Kamps Dhr. M.C. Nawijn Mevr. E.A.A. Nollen
10.30	11.00	Overleg panel	
11.30	12.15	**Gesprek met studenten M Biology, M Molecular Biology and Biotechnology** Mevr. R. Schaake Mevr. N.S. Eilander Dhr. S. Heijningen Dhr. B.M.H. Bruinink Dhr. J.G. Edens Dhr. S. Pontalti	**Gesprek met studenten M Ecology and Evolution,** **M Marine Biology** Dhr. T. Ausma Mevr. S.E. Galema Dhr. R.J. Hein Mevr. P. van der Werf Mevr. S.L. Bedolfe Mevr. M. van der Snoek Dhr. T. Oosting
12.15	13.00	Lunch, overleg panel	
13.00	13.45	**Gesprek met docenten M Biology, M Molecular Biology and Biotechnology** Dhr. M.W. Fraaije Dhr. P. Meerlo Dhr. S. Verhulst Dhr. P.J.M. van Haastert Mevr. I.J. v.d. Klei Dhr. L.W. Beukeboom	**Gesprek met docenten M Ecology and Evolution, M Marine Biology** Mevr. J.L. Olsen Dhr. E.J. Stamhuis Dhr. F.J. Weissing Mevr. B. Wertheim Dhr. C. Both
13.45	14.00	Overleg panel	
14.00	14.45	**Gesprek Opleidingscommissie BCN** Dhr. U.L.M. Eisel Dhr. A.J.W. Scheurink Dhr. K.S.F. Klaver Mevr. H.F. Godthelp Mevr. C.M. de Blecourt	**Gesprek Opleidingscommissies** Dhr. P.K. Sharma Dhr. C. Kapinga Dhr. J.S. Lolkema Mevr. L. Hielkema Dhr. G. van Dijk Mevr. A.L. Robijn
14.45	15.30	**Gesprek Examencommissie BCN** Dhr. M.R. Nieuwenstein Dhr. W.F.A. den Dunnen Dhr. J.C. Billeter Mevr. I.A. Neven	**Gesprek Examencommissies Biologie** Dhr. A.J.W. Scheurink Dhr. D.J. Slotboom Mevr. A.G.J. Buma Dhr. E. Hak Dhr. H.J. Haisma
15.30	16.00	Overleg panel	

16.00	17.00	**Gesprek met formeel verantwoordelijken + adjunct-directeuren** **Formeel verantwoordelijken** Mevr. P. Rudolf, directeur Graduate School of Science Dhr. J.T.M. Elzenga,directeur Undergraduate School of Science Dhr. J. Knoester, decaan Dhr. K. Poelstra, vice-decaan, portefeuillehouder onderwijs **Adjunct-directeuren** Dhr. L.P.W.G.M. van de Zande Dhr. B.D.H.K. Eriksson Dhr. J. Kok Dhr. P. de Vos Dhr. D.G.M. Beersma Mevr. G.M.M. Groothuis
17.00	17.45	**Rondleiding Zernike-campus** De heren M.H.K. Linskens en L.P.W.G.M. van de Zande

Woensdag 18 november		
9.00	9.45	**Rondleiding UMCG** De heer P. de Vos
9.45	10.00	Reistijd naar Zernike
10.00	15.00	Opstellen voorlopige bevindingen
15.00	15.30	Mondelinge rapportage

Appendix 5: 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:

1825682	1791516	1773992
1940597	1772694	2350831

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 programme committee: 2011-2012, 2012-2013 and 2013-2014
- Annual reports Board of Examiners: 2011-2012, 2012-2013 and 2013-2014
- Annual reports Admission Board: 2011-2012, 2012-2013 and 2013-2014
- CV's of the lecturers (including 5 most important publications, grants, supervised PhD students and additional jobs)
- Scores of the research audit of the research groups of BCN (from the application for the accreditation of the BCN research school)
- MSc thesis award Robin Mills (congratulations letter and website announcements)
- Publications (10 peer-reviewed publications of BCN students)
- Flyers BCN programme
- Newsletter BCN research school
- Article from University Paper UG: too few research masters
- Literature, course manuals, CUAO's, tests and teaching materials of the following courses:
    - Individuality of Behaviour
    - Cognitive Modeling
    - Molecular & Cellular Neuroscience
- Access to all course units via Nestor