

Human Movement Sciences

**Center for Human Movement Sciences,
University of Groningen**

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This report was finalized on 7 December 2012.

Report on the bachelor's and master's programme in Human Movement Sciences of University of Groningen

This report is written according to the standards of the NVAO Assessment framework for limited programme assessments.

Administrative data of the programmes

Bachelor's programme

Name of the programme:	Human Movement Sciences
CROHO number:	56950
Level:	bachelor
Orientation:	academic
Number of credits:	180 EC
Degree:	Bachelor of Science
Mode(s) of study:	Full-time
Language:	Dutch
Location(s):	Groningen
Expiration of accreditation:	31 December 2013

Master's programme

Name of the programme:	Human Movement Sciences
CROHO number:	60054
Level:	master
Orientation:	academic
Number of credits:	120 EC
Degree:	Master of Science
Specializations:	Healthy ageing, Sport, Rehabilitation
Mode(s) of study:	Full-time
Language:	English
Location(s):	Groningen
Expiration of accreditation:	31 December 2013

The site visit of the Human Movement Sciences assessment committee (committee) to the Center of Human Movement Sciences of the University of Groningen took place on 26 and 27 September 2012.

Administrative data of the institution

Name of the institution:	University of Groningen
Status of the institution:	Government supported
Outcome of the institutional quality assurance assessment:	Application submitted

Quantitative data regarding the programmes

The required quantitative data regarding the programmes are included in Appendix 5.

Composition of the assessment committee

The assessment committee was asked to assess the bachelor's programme Human Movement Sciences (CROHO number 56950) and the master's programme Human Movement Sciences (CROHO number 60054). The committee consisted of:

- Prof. N. Fowler (chair), head of Exercise and Sport Science Department, Manchester Metropolitan University;
- Prof. R.G.J. Meulenbroek, director of the master's programme Cognitive Neurosciences, Radboud University Nijmegen;
- Prof. P. Wylleman, professor of Sport Psychology, Vrije Universiteit Brussel;
- Prof. M. Rodgers, PT, PhD, chair of Department of Physical Therapy and Rehabilitation Sciences, University of Maryland School of Medicine;
- R. Plas, BSc, student of the research master in Fundamental and Clinical Human Movement Sciences, VU University, Amsterdam (present during the site visit at the University of Groningen);
- E. Middeljans, BSc, student of the master's programme in Human Movement Sciences, University of Groningen (present during the site visit at VU University, Amsterdam).

The committee consisted of a chairman and four members. One of the student members visited VU University Amsterdam, the other student member visited University of Groningen. Appendix 1 gives the abbreviated curricula vitae of the committee members.

The project leader of the assessment was Ms. N.M. Verseput, MSc, QANU staff member. Ms. P.G.A. Helming, MSc, was the secretary of the committee and present during the site visit. The site visit took place on 26 and 27 September 2012. The programme of the site visit is included as Appendix 6.

All members and the secretary of the committee signed a declaration of independence as required by the NVAO protocol to ensure that the committee members judge without bias, personal preference or personal interest, and the judgement is made without undue influence from the institute, the programme or other stakeholders (see Appendix 8).

Working method of the assessment committee

Task of the committee

The task of the assessment committee is to evaluate the bachelor's and master's programme in Human Movement Sciences at VU University Amsterdam and at the University of Groningen according to the accreditation criteria set by NVAO. Using these criteria, the committee is expected to assess different aspects of the quality of the programme, based on the information provided by the programme in the critical reflection and from discussions held during the site visit. The assessment report does contain recommendations made by the committee, but the emphasis lies on the assessment and justification of fundamental quality.

Preparatory phase

After receiving the critical reflection, the project leader checked the quality and completeness of the information provided. After approval, it was forwarded to the committee. In addition, each committee member received and read three theses for each of the programmes being assessed. The theses were selected by the project leader in consultation with the chair of the committee (see Appendix 7).

Before the site visit the project leader created a draft programme for the interviews (see Appendix 6). The draft programme was discussed with the chair of the committee and the programme coordinator. As requested by QANU, the programme coordinator carefully composed and selected representative panels.

Site visit

During the initial meeting at the start of the site visit, the committee discussed its findings based on the critical reflection. It also discussed its task and working methods and the proposal for the domain-specific requirements (see Appendix 2).

During the site visit, interviews were held with representatives of the Board, students, staff members, the Examination Committee, the Educational Committee, alumni, and the student advisor. The committee also received and studied additional information, for example study books of several courses and reports from the meetings of the Educational Committee. When considered necessary, committee members could read additional theses during the site visit. The programme of the site visit also included a guided tour along the faculty's laboratories and educational facilities. A consultation hour was scheduled to give students and staff of the programmes the opportunity to talk to the committee informally, but no requests were received.

The committee used a significant part of the final day of the site visit to discuss the assessment of the programmes and prepare a preliminary outline of the findings. The site visit concluded with an oral presentation of these findings by the chairman, consisting of a general assessment and several specific observations and impressions of the programmes.

Scores of the standards

The assessments were performed in line with NVAO's accreditation framework. Each standard is scored on a four-point scale (unsatisfactory, satisfactory, good and excellent). The committee adopted the standard decision rules provided by NVAO. These are:

- **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 standards across its entire spectrum.
- **Excellent:** The programme systematically well surpasses the current generic quality standards across its entire spectrum and is regarded as an (inter)national example.

Reporting

After the site visit the secretary wrote a draft report based on the committee's findings. This draft was first read and commented upon by the committee members before being sent to the relevant faculty to check for factual irregularities. Any comments of the faculty were discussed with the chair of the committee and, if necessary, with the other committee members. After that, the report was finalised.

Summary judgement

This report reflects the findings and considerations of the Human Movement Sciences assessment committee on the bachelor's and master's programme in Human Movement Sciences of the University of Groningen. The committee's evaluation is based on information provided in the critical reflection and gleaned from the selected theses, additional documentation and interviews held during the site visit. The committee signalled both positive aspects and ones which could be improved. Taking those aspects into consideration, the committee decided that both the bachelor's and master's programme fulfill the requirements of the criteria set by NVAO which are the conditions for accreditation.

Standard 1: Intended learning outcomes

The committee assesses this standard as **satisfactory** for both programmes.

The committee compared the final qualifications prepared by the programmes against the domain-specific reference framework for Human Movement Sciences and examined their profile and orientation. It concludes that the framework provides an adequate reflection of the domain and the general knowledge and skills that graduates should have acquired. It understands that the framework has a broad design, as each of the two institutes in Groningen and Amsterdam has different interpretations and accents concerning Human Movement Sciences. It is convinced that the content, theoretical richness and breadth make Human Movement Sciences worthwhile to invest in as a separate domain and profile.

The committee is satisfied with the profile of the programmes, which have a multidisciplinary approach and focus on the fields of healthy ageing, sport and rehabilitation. It also appreciates the explicit attention paid to scientific orientation in both programmes. While the consideration given to the professional practice in the profiling is at an acceptable level within the master's programme, the committee advises paying more attention to vocational guidance in the orientation of the bachelor's programme, to make it clearer to students the potential career routes for which their knowledge and skills are suitable.

According to the committee, the final qualifications of the bachelor's and master's programme reflect the domain-specific reference framework and the specified profiles. In addition, they clearly describe the different expectations of students at the bachelor and the master level. Even so, the committee feels that communication about the differences in intended learning outcomes between the bachelor's and master's degree programmes could be improved.

Standard 2: Teaching-learning environment

The committee assesses this standard as **satisfactory** for both programmes.

The committee concludes that the programmes, the personnel and the programme-specific facilities enable the bachelor and master students to realize the final qualifications. It values the dedicated focus on scientific and academic training in both programmes. It notes that the attention paid to the professional practice and vocational guidance in the bachelor's curriculum is limited. It advises improving this situation, which is also a wish expressed by the students and alumni.

The committee confirmed that the curricula of both programmes are substantial and have a clear, sophisticated design. The four distinguished areas of competence (the domain of Human Movement Science, academic level of thought and practice, professional and personal

development, and human movement research) contribute to the coherence of the bachelor's and master's programme. The committee advises providing more room for choice and specialization in the bachelor's curriculum. The committee values the increasing attention paid to internationalization in both programmes.

The programmes' intake rates are substantial, although diversity of the inflow of bachelor students might be improved. The committee is concerned about the high drop-out rate after the first bachelor year. Although it noticed this is partly due to students who choose the bachelor's degree in Human Movement Sciences as an alternative after being turned down for Medicine, Dentistry or Physiotherapy, the committee recommends communicating clearly to students the expected level of knowledge and skills before they start with the programme. Furthermore, it advises exploring possibilities to implement a procedure of interviewing, testing and assessing students prior to entering the bachelor's programme. The completion rates of both programmes are sufficient.

The committee concludes that the staff is good, consisting of motivated lecturers who have the correct expertise and level. It compliments both programmes on the fact that all lecturers are actively involved in research and teaching, including the deployment of professorial chairs in the first bachelor year. It established that the work pressure remains too high and thus expects the programmes to improve the staff-student ratio further to a more acceptable level in the near future. The committee ascertained that the facilities are adequate.

The committee confirmed that the institutes are well aware of the quality of the teaching environment, in which lecturers and students are closely involved and well supervised.

Standard 3: Assessment and achieved learning outcomes

The committee assesses this standard as **satisfactory** for both programmes.

The committee concluded that the programmes have an adequate system of assessment and can demonstrate that the target final qualifications are realized. It is pleased to see that the university-wide assessment policy is being translated for the faculty and both programmes. It found that the examination committee is very involved and committed, but felt it could act more proactively in monitoring the quality of assessment. The assessments, as a whole, are sufficiently varied and well considered according to the committee and adequately reflect the contents of the bachelor's and master's programme and the students' level. The bachelor's and master's thesis procedures are satisfactory, even though the committee advises the staff to apply the available, itemized thesis evaluation protocols more strictly.

The committee concluded that the bachelor and master students acquire an adequate final level by the end of the bachelor's and master's programme. This was confirmed by the bachelor theses and master theses evaluated by the committee. It found that the target final qualifications of both programmes were realized, and there is an adequate difference in the level of achieved learning outcomes between the bachelor and the master reports. Moreover, the committee concluded that graduates of the bachelor's and master's programme are sufficiently prepared for relevant job positions.

General conclusion

The committee assesses the standards from the Assessment Framework for Limited Programme Assessments in the following way:

Bachelor's programme in Human Movement Sciences:

Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment and achieved learning outcomes	satisfactory

General conclusion	satisfactory
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Master's programme in Human Movement Sciences:

Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment and achieved learning outcomes	satisfactory

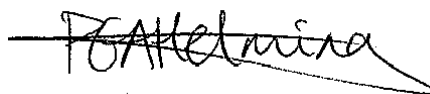
General conclusion	satisfactory
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The chair and the secretary of the committee hereby declare that all members of the committee have studied this report and that they agree with the judgements laid down in it. They confirm that the assessment has been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

Date: 7 December 2012



Prof. N. Fowler



Ms. P.G.A. Helming, MSc

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

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 or master; 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.

1.1. Findings

In this standard the committee's findings are first examined against the domain-specific reference framework (1.1.1). Then attention is paid to the profile and orientation (1.1.2) and level of final qualifications (1.1.3) of the bachelor's and master's programme in Human Movement Sciences at the University of Groningen.

1.1.1. Domain-specific requirements

The institutes participating in the Human Movement Sciences (HMS) cluster visit (VU University Amsterdam and University of Groningen) jointly prepared the domain-specific reference framework (hereafter the framework) (see Appendix 2). The framework covers both the bachelor's and master's programme.

The committee studied the framework and ascertained that it properly reflects the domain of Human Movement Sciences. It observed that the framework has a rather broad design because of the differences in orientation between both institutes. Still, it was pleased to confirm that the institutes managed to reach an adequate understanding on the framework. It noted that the domain-specific requirements are well defined and provide sufficient insight into the requirements set by professional colleagues. The framework specifies clearly the knowledge and skills students must have in general at the bachelor and master level.

The committee would like to stress the challenge of making the framework known to students (including prospective ones) to make sure they are sufficiently aware of the aims of Human Movement Sciences and the differences in orientation between VU University Amsterdam and University of Groningen.

The committee is delighted to note that Human Movement Sciences have grown into a discipline whose identity and independence are rarely disputed. It is positive that the programmes in Amsterdam and Groningen are acting confidently in this respect. It is convinced that the content, theoretical richness and breadth make it worthwhile to invest in Human Movement Sciences as a separate domain and profile. It is pleased with the passionate attitude of the management of both the Groningen and Amsterdam programmes towards the domain, as shown during the site visit.

1.1.2. Profile and orientation

According to the critical reflection, the profile of the Groningen bachelor's programme is as follows:

The University Bachelor in HMS:

- is a broadly educated and academically trained graduate with knowledge of movement, movement coordination, motor problems, and ways of influencing motor behaviour;
- has a broad understanding of the field of HMS and the necessary skills to read and interpret the scientific literature;
- is familiar with the methodology and data analysis and have the necessary skills to collect, analyze and interpret empirical data under the supervision of staff;
- is able to translate the acquired knowledge and skills into relevant HMS issues and communicate this in Dutch.

The University Master in HMS:

- is a self-aware, independent and critical academic, yet also a team player, with a broad vision on HMS and a comprehensive knowledge of fundamental interdisciplinary theory. This is combined with specialist mastery of a self-determined research theme within one of three specializations: Motor function, cognition and healthy ageing, sport, learning and performance, and rehabilitation and functional recovery;
- is able to apply the acquired scientific knowledge, understanding and skills to existing and new situations independently, is able to make own choices and can justify them;
- can find and demonstrate the solution to movement problems and issues in a broad societal perspective;
- is capable of performing scientific research within a specific research field in productive cooperation with other interested parties and their supervisors, and can formulate reports on this research both orally and in writing in English;
- is capable of presenting its findings in a national and international perspective in the form of academic English-language publications;
- is competitive with regard to societal or scientifically oriented careers on the basis of their scientific training and individual specialization.

Elaborating on the profiling of both programmes as regards content, the critical reflection states that the bachelor's and master's programme in Human Movement Sciences have a strong multidisciplinary character, with roots in practical disciplines (such as physical education and physiotherapy) as well as scientific ones (like psychology and anatomy). An array of behavioural and biomedical bachelor courses is offered to begin with, and the disciplines become more integrated over the course of the bachelor's and master's programme. In addition, the critical reflection describes the typical accent of the Groningen programmes on neurosciences and methodological and statistical skills. Both programmes are strongly involved in the scientific and societal issues of ageing, sport and rehabilitation. These three interrelated fields are explicitly reflected in the specializations of the master's programme. Within the sports domain, Groningen research traditionally focuses more on team sport and group dynamics. In the area of ageing, the bachelor's and master's degree programmes profile specifically healthy ageing.

The committee is satisfied with the profiling of the bachelor's and master's programme. It is pleased with their multidisciplinary character and values the profiling based on the fields of healthy ageing, sport and rehabilitation. This adds to coherence within and between the bachelor's and master's programme.

Academic and professional orientation

As stated in the critical reflection, the main aim of the bachelor's programme is to provide a broad academic basis for a master's degree (in Human Movement Sciences, Sport Sciences, Medicine, Psychology and Public Health Studies). Bachelor students should learn the basic principles of academic thought and conduct. The deepening of understanding of the fields of healthy ageing, sport and rehabilitation is central to the bachelor's programme. In the critical reflection the institute states that, although the deepening and research experience furnish students with an initial competence for the labour market, employment possibilities for bachelor graduates are limited. On inquiry, the latter assertion was confirmed by the management during the site visit.

After the students' first acquaintance with the domain during the bachelor's programme, the master's programme aims to gradually introduce students to one of three research fields and the corresponding professional fields. The institute expects master graduates to be fully equipped for the labour market, thanks to the exploration of career possibilities during the master's programme (for instance, via the selected master track and the master's research project). Moreover, students further develop the academic skills needed to conduct independent Movement Sciences research in either a university or a more general professional setting.

The committee agrees with the scientific orientation of the bachelor's programme and its provision of a broad basis for a master's degree. However, it finds the statement about limited possibilities for bachelor graduates on the labour market questionable. It stresses the importance of early orientation to career possibilities in the bachelor's programme as well. It also refers to the findings of the previous programme assessment committee, which stated that the exploration of graduate careers receives insufficient attention in the learning objectives and programme. During the site visit students and alumni expressed their desire for a greater focus on gaining practical experience during the bachelor's programme. The limited exposure to laboratory skills in the bachelor programme was noted by the committee as a concern. Additionally, the committee points to the legal introduction of the strict separation between the bachelor's and master's programme, which implies that students have to complete the bachelor's degree before being allowed to enter a master's programme. One of the aims of this measure is to ensure that a bachelor's programme is a free-standing programme that, besides preparing for a master's programme, also prepares students for professional positions on the labour market. Therefore, the committee expects the programme to pay more explicit attention to the orientation to professional practice in the bachelor's programme. It is satisfied with the orientation of the master's programme, which prepares students for professional practice in a scientific manner.

1.1.3. Learning outcomes and level

The final qualifications of the bachelor's and master's programme in Human Movement Sciences are listed in Appendix 3. It also includes a specification of the relation between the intended learning outcomes and the Dublin descriptors.

The final qualifications of both programmes reflect four areas of competence, namely

- The domain of Human Movement Sciences (emphasis on knowledge);
- Academic level of thought and practice (emphasis on skills);
- Professional and personal development (emphasis on behaviour);
- Human movement research (focus on integration and application).

The critical reflection states that the bachelor's programme aims at students acquiring content-related knowledge, skills and understanding. It strives to produce students with an academic level of thought and practice. It is designed to prepare them for further study in the domain or a related field. The final qualifications of the master's programme aim at deepening and sharpening the scientific qualifications obtained at the bachelor's level, along with a higher degree of independence. Students are meant to specialize in a specific subject. According to the critical reflection, the qualifications of the master's programme aim at preparing students to practise as an academically trained human movement scientist and for a career as a researcher in the field of Human Movement Science. The final qualifications of the master's programme also include writing and presenting in English.

The committee examined whether the final qualifications match the profile and orientation presented in the bachelor's and master's programme and the domain-specific reference framework. It remarks that, just like the profile and orientation of the bachelor's programme, the learning outcomes reflect limited attention for preparing bachelor students to enter the labour market after graduation (see 1.1.2). It also verified the relationship between the learning outcomes and the Dublin descriptors, which are considered to be general, internationally accepted descriptions of a bachelor's and master's programme. It observed that the Dublin descriptors are well reflected in the learning outcomes of both programmes. It appreciates the structure of the learning outcomes of both programmes reflecting the four areas of competence. It sees a clear distinction between the final qualifications at the bachelor level and those at the master level. Nevertheless, during the site visit the committee found that the interviewed students, alumni and lecturers did not seem fully aware of the differences in the level of the learning outcomes between the bachelor's and the master's programmes. It questions whether the difference of level of final qualifications is actually embedded. It advises improving the communication to students (including potential ones) and staff members on this point. Despite this remark, the committee ascertained that the final qualifications of both programmes are adequately formulated and meet the requirements demanded of a Human Movement Sciences graduate at the scientific level.

1.2. Considerations

The committee compared the final qualifications prepared by the programmes against the domain-specific reference framework for Human Movement Sciences and examined their profile and orientation. It concludes that the framework provides an adequate reflection of the domain and the general knowledge and skills that graduates should have acquired. It understands that the framework has a rather broad design, as each institute has different interpretations and accents concerning Human Movement Sciences. The committee is convinced that the content, theoretical richness and breadth make it worthwhile to invest in Human Movement Sciences as a separate domain and profile.

The committee is satisfied with the profile of the programmes, which have a multidisciplinary approach and focus on the fields of healthy ageing, sport and rehabilitation. It also appreciates the explicit attention paid to scientific orientation in both programmes. While the focus on the professional practice is acceptable in the profiling of the master's programme, the committee advises paying more attention to vocational guidance in the orientation of the bachelor's programme, to make it clearer to students the careers for which their skills and knowledge would be suitable and the professional contexts in which they could progress.

According to the committee, the final qualifications of the bachelor's and master's programme reflect the domain-specific reference framework and the specified profiles. In addition, they clearly describe the different expectations of students at the bachelor and the

master levels. Even so, the committee feels that communication about the differences in intended learning outcomes between the bachelor's and master's degree programmes could be improved. Overall, the programmes meet the criteria set for their curricula by the professional field and the speciality.

1.3. Conclusion

Bachelor's programme in Human Movement Sciences: the committee assesses Standard 1 as **satisfactory**.

Master's programme in Human Movement Sciences: the committee 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.

2.1. Findings

In this standard the design and coherence of the bachelor and master curricula are examined (2.1.1). The committee looked at the extent to which the final qualifications are translated within the curricula (2.1.2) and the amount of attention paid to scientific training and the professional practice (2.1.3). Finally, the following topics were considered: the didactic concept and the facilities (2.1.4), intake, study load and outcomes (2.1.5), teaching personnel (2.1.6) and programme-oriented internal quality assurance, which includes descriptions of the measures for improvement implemented as a result of the previous assessment visit (2.1.7).

2.1.1. Contents and structure of the curricula

The committee studied the curricula of the bachelor's and master's programmes, looking for coherence and a logical structure. The curricula of both programmes are included in Appendix 4. The committee states that the design and coherence of both programmes are sufficiently explicit.

Curriculum of the bachelor's programme in Human Movement Sciences

The bachelor curriculum consists of 180 EC. According to the critical reflection, it is structured in accordance with the four areas of competence named in the final qualifications of the programme (the domain of Human Movement Sciences, academic level of thought and practice, professional and personal development, and human movement research; see 1.1.3):

- The domain-specific clusters represent course units that have a common scientific orientation (for instance *Anatomy*, *Neuromechanics* and *Motor Control*), reflecting the three disciplines of general Biomedical Sciences, Biomedical Neurosciences and Behavioural Sciences;
- The academic level is particularly addressed in courses like *Statistics 1-2-3*, *Matlab* and *Experimental Research* (including attention to scientific writing and presenting in several domain-specific courses);
- Professional and personal development are represented in the introductory course *Introduction in HMS* and some electives (15 EC);
- The competence of research into human movement (integration and application) is mainly incorporated in the *Bachelor Research Project*, which forms the completion of the bachelor's programme. In the *Bachelor Research Project* research questions are studied in experimental lab-based or field-oriented study designs.

Curriculum of the master's programme in Human Movement Sciences

The master's programme in Groningen is a two-year programme, worth a total of 120 EC. The critical reflection shows that the structure of the curriculum is also clearly derived from the four areas of competence in the intended learning outcomes:

- Students choose one of the following three master specializations: Healthy Ageing, Sport, or Rehabilitation. Together with the course *Review article* the master tracks represent the deepening of specific knowledge in the domain of Human Movement Sciences;
- The competence of academic thought and practice is addressed in the compulsory courses *Advanced statistics* and *philosophy of science & ethics*, supplemented with two electives of a methodological nature;
- In addition, the elective internal (within the Center for Human Movement Sciences) and external profiling courses (in other master's programmes) as well as the *Academic Assignment* provide room for professional and personal development;
- The second year of the master curriculum is primarily focused on the competence of human movement research. In the *Master research project* specialized knowledge and academic research and communication skills converge in a full scientific investigation.

Contents and coherence

Based on the extensive information provided in the critical reflection and on the reading table during the site visit, the committee found that the curricula of both the bachelor's and master's programme are substantial, sophisticated and well structured. It ascertained that the design and coherence of both programmes are properly explicit, mainly thanks to the relation with the four distinguished areas of competence.

It notes that the flexibility in the bachelor curriculum is rather limited (elective courses of only 15 EC). This was confirmed by the interviewed bachelor students, who favoured more extensive room for electives. The committee advises extending the possibilities for professional and personal development by providing more room for choice and specialization in the bachelor curriculum. On the other hand, it is pleased with the room for individualized study programmes provided by the master tracks and elective (profiling) courses in the master curriculum, as well as by the opportunities for students to choose a specific subject for the *Research Article*, the *Academic Assignment* and the *Master Research Project*. This appreciation was shared by the delegation of master students during the site visit. In addition, the committee highly values the incorporation of the *MasterMonitor* within the master curriculum. The committee found this a promising new instrumental course (introduced in 2011-2012) that supports students in making choices and realizing goals in order to become the human movement scientist they aspire to become. The *MasterMonitor* helps students to manage and update digital logbooks, consult periodically with lecturers from the chosen specialization to discuss questions and reflections, undertake relevant activities to enhance their professional perspective, and file relevant personal documents. According to the master students interviewed during the site visit, the *MasterMonitor* facilitates students effectively determining an individual study programme that matches their fields of interest and personal preferences.

2.1.2. Learning outcomes

The committee examined whether and how the final qualifications formulated by the bachelor's and master's programme have been translated into the curricula. It paid specific attention to the extent of internationalization.

The committee studied the correspondence between the intended learning outcomes and the curricula of the bachelor's and master's degree programmes. It gained insight into the way learning outcomes are translated within the courses by studying the description of learning objectives and the specification of contents, assignments and literature on the course level. It explored the study guides of several bachelor and master courses available during the site visit and online via Nestor. It ascertained that both the bachelor and master curricula adequately fit the intended learning outcomes. The final qualifications are cross-matched to courses

within the curricula. Each of the individual specializations in the master curriculum demonstrates proper internal consistency, according to the committee. Once again, the committee remarks that communication about the difference in the level of final qualifications of the bachelor's and the master's programme should be improved (see 1.1.3).

Based on the interviews with lecturers and the Educational Committee, the programme assessment committee found that staff are knowledgeable about matching the design and content of specific courses with the intended learning outcomes of the programmes. The committee was impressed by the awareness and serious involvement of the lecturers on this point. They assure proper coherence within and between the curricula. For example, the committee appreciated the educational value of returning to a specific case in several different courses throughout the bachelor curriculum and recognise the complexity of co-ordinating this. It values the translation of final qualifications being part of the continuous process of (re)designing the curricula. Although the mainly informal communication lines turn out to work well, the committee recommends implementing a more formalized mode of working in order to improve efficiency and extend the possibilities of monitoring. For instance, this topic might be included in the teacher professionalization context.

Internationalization

The committee examined the extent to which internationalization is part of the bachelor and master curricula. During the site visit, the management provided information on the degree of internationalization in both programmes. It explained that the institutes have four active Erasmus agreements in place with universities in Belgium, Portugal, Hungary and Italy. Additionally, a non-Erasmus exchange agreement exists with a university in Canada. The data provided by the management showed that in 2011-2012 six bachelor and master students studied abroad while fourteen foreign students came to the Center for Human Movement Sciences. For 2012-2013 eight students had already departed or were due to leave for an international internship. These numbers are showing an increasing trend over time.

According to the committee, in general, Human Movement Sciences is no magnet for foreign students. The committee states that the direct professional benefit of studying abroad is limited; international experience is not an obvious professional route for Dutch and foreign students in the HMS field. In line with this, based on the information provided during the interviews with the management team, the committee confirmed that the number of students coming from and going abroad is rather limited. Nevertheless, it acknowledges the added value of international experience in terms of cultural development. Moreover, it may be valuable for getting a better international perspective on what Human Movement Sciences represent. Internationalization is also relevant for staff members participating in research projects.

The committee was pleased with the fact that the management and staff members had a shared understanding of why internationalization is important. It values the attention paid to internationalization within the bachelor's honours programme, the possibility of going abroad to conduct the *Academic Assignment*, and the fact that the master's programme is taught entirely in English. Despite the limited number of students studying abroad, the committee is pleased to see that the number of students going abroad and the number of foreign students coming to Groningen are increasing. Nevertheless, it feels that there is room for further improvement, especially given the extent of the two-year master programme. As suggested by the interviewed bachelor students, information on studying abroad could be provided earlier in the study programme (now information is provided in the third bachelor year). Also, an exchange week for students might be incorporated within the curricula. In addition, the

committee favours a more visible role of the management in providing room (time and money) for international exchange to staff members. Although during the interview with staff members it became clear that there are possibilities to go abroad on request, the committee feels that the management should act more proactively towards staff members on this point. For instance, by setting up an international training network and arranging summer schools with international preferred partner universities or by offering a variation of sabbaticals (by means of saved up days off).

In short, the committee states that the level of internationalization in both programmes adequately meets the international standard in the Human Movement Sciences domain. It expects the current and future efforts made by the management will pay off and contribute to an improved level of internationalization in the future.

2.1.3. Academic and professional orientation

The committee feels that the development of scientific research skills is effectively addressed within the bachelor's and master's programme. It noted that both programmes have a proper scientific orientation, which is reflected for example by the substantial methodology and statistics component in the curricula and by the ongoing training of scientific writing and presentation throughout both programmes. The site visit revealed that students and alumni are also positive about the academic orientation of the programme.

As noted before (see 1.1.2), the critical reflection states that little attention is paid to vocational guidance in the bachelor programme since job opportunities for bachelor graduates are limited. The committee disagrees with this statement and once again stresses the importance of early orientation on career possibilities in the bachelor curriculum. This is supported by the wish for a greater focus on gaining practical experience and for professional orientation that students and alumni expressed during the site visit. The committee does not question the effectiveness of the bachelor's programme in training students to acquire the necessary academic skills to practise a relevant profession. However, it advises the institute to augment the possibilities for labour market orientation and vocational guidance in the bachelor curriculum, as well as to improve communication about these possibilities. It understands that resources are limited, but thinks that some simple and low-cost solutions are at hand. The programme might consider the following suggestions made by the interviewed students, alumni and the committee:

- Invite guest lecturers from the professional working field to talk about their professional practice;
- Incorporate company visits into specific courses, thereby making use of the contacts of lecturers and alumni with the working field;
- Invite alumni to share their experiences on the labour market after graduation;
- Explicitly name the link with professional practice when discussing cases;
- Explicitly name the value of scientific research results in professional practice.

At the same time, the committee noted that the professional orientation in the master's programme is of an adequate level. Contributing aspects include the possibility to execute the *Academic Assignment* in the professional field and the room for professional profiling via external electives (for instance, by following the *Teacher Training* course provided by VU University Amsterdam). During the site visit, master graduates expressed their satisfaction with the orientation to professional practice in the master curriculum.

2.1.4. Didactic concept and facilities

The committee examined the didactic vision underlying the teaching in the bachelor's and master's programme. It also explored whether the available facilities are adequate.

The critical reflection does not elaborate a particular didactic concept being applied. Nevertheless, during the interviews with lecturers, the Educational Committee and the management, the committee noted that a growing independence and an increasing analytical level are important themes in both curricula. The progressive level of self-regulation was also recognized by the students interviewed during the site visit. The course information in the critical reflection and on the reading table during the site visit showed that the working methods and assessments confirmed this vision of the educational concept.

Unfortunately, the committee noted that the didactic vision is not written down and not very elaborate. Still, it was pleased to see that the interviewed teaching staff, management and the Educational Committee had a common understanding of how to teach their students. It compliments the staff on translating the vision on education into practice, in a way that was recognized and valued by students, but encourages them to formalise this in a written strategy.

Facilities

Based on the documentation received, the interviews conducted with various groups and the guided tour that was part of the programme of the site visit in Groningen, the committee ascertained that the facilities are appropriate. It confirmed that the laboratories were up to date and the facilities were well supported by a recently increased number of technical staff members. It encourages the institutes to make additional laboratories available for teaching students and to thus make it possible for the teaching of specific practical skills in the Bachelors programme. More space and an efficient use of it could meet the students' request for more and broader practical experience, especially within the bachelor curriculum.

2.1.5. Intake, study load and completion rates

The quantitative data for intake, feasibility and outcomes are listed in Appendix 5.

Intake

The committee noted that enough students enter both programmes with sufficient knowledge and skills to complete them successfully. The annual intake rates of the bachelor's programme show an increasing trend over time, from 129 in the 2005-2006 academic year to 167 in 2010-2011. The enrollment in the master's programme went up from 38 students in 2005-2006 to 77 students in 2010-2011. The intake of the master's programme is very homogenous, since about 80 to 90 percent of new master students are graduates of the bachelor's programme in Human Movement Sciences of the University of Groningen. The remaining group mainly consists of students who graduated in physiotherapy, occupational therapy, physical education or movement technology. As noted earlier, the enrollment of foreign students is rather low (see 2.1.2.).

During the site visit, the committee spoke about the intake rates with all delegations. Both programmes have substantial intake rates, which is positive. The lecturers made it clear that the increase in student numbers carried some logistics challenges (for instance, regarding the capacity of laboratories), but the management has dealt with them adequately. For example, master students have been asked to support freshmen with studying at university for the first time, and instead of individual research projects, more group projects have been introduced. The committee feels the very homogenous intake of the master's programme is not

beneficial. It encourages the programme to attract a more heterogeneous group of master students (foreign students, students from other universities and other domains, and students with a background in higher vocational education). This may increase the discussion and interaction between students with different frames of reference during classes, thereby potentially increasing the learning effect.

Study load and study support

The committee examined the feasibility of the bachelor's and master's programme by exploring the study load and study support available to students. It confirmed that the bachelor's and master's programme are feasible, based on the information provided and the interviews conducted with students, lecturers and alumni. During the site visit, students expressed their satisfaction with the current workload in both programmes. The committee ascertained that the number of contact hours in the bachelor's programme is sufficient (see Appendix 5). The total number of contact hours of lectures and practical classes per year decreases in the course of the bachelor's programme, which is in line with the didactical vision of increasing independence. Although no quantitative data has been provided on the number of contact hours in the master's programme, based on the interviews with students and lecturers, the committee noted that the lines of decreasing scheduled contact hours and increasing self-regulation continued in the course of the master's programme. During the interviews, students and alumni mentioned that the number of contact hours in both the bachelor's and master's programme is appropriate. In addition, the committee was satisfied that measures are taken when parts of the programme are discovered to be impeding the students' study progress. For example, in 2008 teaching in the 'pitfall' courses *Mathematics* and *Introduction to Matlab* was intensified.

According to the interviewed students and alumni, the available study support contributes to the feasibility of both programmes. They highly valued how approachable the lecturers, supervisors and study advisors are, and felt that there are sufficient possibilities to receive study support when needed. Also, the committee appreciates the mentoring system in the freshman bachelor year, which entails five to six mandatory meetings (including two individual meetings) with a well prepared and supervised senior student mentor, about study progress, difficulties in studying and the individual study programme. Moreover, it again points to the *MasterMonitor* as an inventive instrument providing study support to master students. In sum, it found that study support is adequate for both bachelor and master students.

Completion rates

The critical reflection states that the bachelor success rate has been quite variable over the past years. The average bachelor success rate was 63 percent after four years, and for the 2007 cohort this rate was 72 percent. This latter number does meet the targets for 2015 recorded in the university's performance agreements (70 percent after four years). In the critical reflection attention is drawn to the high drop-out rate after the first bachelor year. The average drop-out rate over the last six years was 35 percent, while for the 2010 cohort it was even higher (42 percent). According to the management, a substantial part of this is due to students who choose the bachelor's degree in Human Movement Sciences as an alternative after being turned down for Medicine, Dentistry or Physiotherapy. These students drop out if they are admitted after all during or after the propaedeutic bachelor year. Realistically, the management acknowledges that other factors may be involved, such as a mismatch in expectations about the programme's content or about the difficulty and variety of courses.

According to the critical reflection, the master success rate has varied over the years as well. The targets for graduation were 30 percent after two years and 60 percent after two and a half years; these targets were met by four out of five cohorts, only the 2009-2010 cohort is lagging behind (see Appendix 5). Reasons for delay include difficulties in combining work and studies, difficulties in combining two master's programmes, and conscious postponement of the date of graduation in order to be able to start a second master's programme without extra costs.

To improve success rates and to prevent delays and drop-outs, a number of measures have been implemented, and more are being planned. Among others, this includes the following actions:

- The introduction of the binding study advice (BSA) as of 2008. This binding advice implies that students who have not obtained 40 EC in the first bachelor year are not allowed to continue with the programme. As of the 2012-2013 academic year, the BSA standard will be increased to 45 EC. During the site visit, students mentioned the BSA as a proper and stimulating measure;
- The mentoring system in the first bachelor year;
- Study support for new bachelor students by senior bachelor and master students;
- An intensification of the difficult courses *Mathematics* and *Introduction to Matlab*;
- Facilitating a one-year programme preparing for the medical master's programmes.

Based on the quantitative data and the information provided in the interviews during the site visit, the committee feels that the completion rates of both programmes are just satisfactory. Especially the high drop-out rates after the first bachelor year are of concern to the committee. However, it compliments the institutes on the appropriate solutions being implemented to reduce delay and drop-outs. It suggests exploring possibilities to communicate what a typical student of Human Movement Sciences is, to collect information in order to determine potential shortcomings in the entrance level of knowledge and skills, and to investigate possibilities of up-front selection in the bachelor's programme (such as implementing a selection interview for potential bachelor students to check their motivation and bring their expectations into line with the actual programme). The committee has confidence in a combination of these solutions contributing to improvement of the completion rates in the near future.

2.1.6. Teaching personnel

Quantity of teaching personnel

In 2007, the previous programme assessment committee concluded that the quantity of staff of the bachelor's and master's programme was insufficient. The critical reflection states that between 2006 and 2011 the teaching staff was increased from 11.0 fte to 12.6 fte (see Appendix 5). Nevertheless, because of the rise in student numbers, the current staff-student ratio is unaltered. The mean staff-student ratio is 1:44; 1:53 for the bachelor's programme and 1:26 for the master's programme. Based on these data, the committee established that, despite the expansion, the quantity of teaching personnel is still barely adequate. It feels that during the period 2006-2011 too few investments have been made in improving the staff-student ratio. In the interviews with the management, the committee understood that since 2011 two more professors have been appointed. Moreover, the number of technical staff has grown respectably, and student assistants and master students are called in to alleviate the workload of teaching staff. According to the management the quantity of teaching staff is sufficient now. During the site visit the committee noted that students are very pleased with the

accessibility and approachableness of lecturers and supervisors and value the overall teaching quality. Nevertheless, the results of the institutes' mini-self-evaluation conducted among the scientific staff in March 2012 and the interview with staff members held during the site visit revealed that the staff itself perceives the quantity of teaching personnel as unsatisfactory. The management confirmed that the current staff-student ratio provides no room for absence due to illness. It may also impact upon the capacity and flexibility of staff to engage in and support research.

The committee established that the staff-student ratio and corresponding work pressure are still too high. It is especially concerned about the discomforts expressed by the teaching staff. It finds the measures taken recently to improve the staff-student ratio reassuring, since they indicate that management is paying the required attention to this point. Nevertheless, it expects the programmes to improve the staff-student ratio further and advises investing in additional teaching staff and looking for opportunities to realize economies of scale for teaching tasks in the short term.

Quality of teaching personnel

As opposed to the quantity of teaching personnel, the quality of the teaching staff is not under dispute. Based on the critical reflection and the interviews with management, staff members and the Educational Committee, the committee ascertained that the personnel policy reflects the breadth and depth of Human Movement Sciences. The relatively young staff is characterized by methodological and theoretical pluralism in combination with several different specializations.

The committee highly appreciates the fact that all staff members participate in the educational programmes. It compliments the programmes on deploying professorial chairs right from the start of the first bachelor year, who thereby serve as role models. Furthermore, all lecturers are active researchers with a PhD degree and publish regularly in international journals, national magazines and professional journals. The department earmarks 40 percent of their time for research and 50 percent for teaching activities. The department seeks to hold to this principle despite the increased pressure on research activities because of the augmented teaching load due to increased student numbers.

One focus of the annual performance reviews involves professionalization. The course evaluation results form an important input for this. As stated by teaching staff during the site visit, there are numerous possibilities for professionalization, as well as teaching support from colleagues. According to the critical reflection, 80 percent of lecturers with a contract of at least three years are expected to have a University Teaching Qualification (BKO) by 2015. A university-wide teacher training programme was set up for new lecturers, and by 2012 seven staff members of the Center for Human Movement Sciences had received their certificate. Currently, most senior staff members are participating in a short assessment procedure and are expected to gain their BKO certificate soon.

The committee again emphasises the great appreciation of the teaching staff the students expressed during the site visit. Despite a minor remark concerning insufficient English language proficiency of some of the lecturers, students are positive about the quality of the teaching staff. Students confirmed that many lessons are taught by the professors themselves. Moreover, the committee heard that five lecturers of Human Movement Sciences won the last five consecutive Lecturer of the Year Awards of the University Medical Center of Groningen. Two of them also received the University of Groningen Lecturer of the Year Award.

Based on the critical reflection and the interviews conducted during the site visit, the committee ascertained that the personnel are inspired and have the correct expertise and a well balanced level. This was confirmed by the results of the teaching staff evaluations included in the critical reflection and shown to the committee during the site visit. The committee considers it positive and significant that the professors are closely involved in the teaching of both the bachelor's and the master's programme.

2.1.7. Quality assurance

As stated in the critical reflection, the quality assurance of the educational programmes is described in the Quality Care Protocol of the University Medical Center Groningen. The director of the Center for Human Movement Sciences is formally responsible for quality assurance, but daily responsibility is delegated to the curriculum coordinator. The latter is assisted by a senior advisor for quality assurance of the educational content. In addition, the expertise of study advisors, student year representatives and the Institute for Medical Education of the University Medical Center Groningen can be used to improve the quality of the educational programmes.

The committee examined the extent to which students and lecturers are actually involved and heard in the evaluation and improvement of the quality of the teaching. In correspondence with the guidelines, all courses and both curricula are evaluated periodically. The outcomes of the evaluations are made available to the management, staff members, the Educational Committee (representing students and teachers of both the bachelor's and the master's programmes) and students. Evaluation results of new courses or disappointing evaluation results are discussed. In addition, in March 2012 a mini-self-evaluation was conducted among scientific staff and students of both programmes. During the site visit the committee was pleased to find a close collaboration between the study advisors and the Educational Committee in assuring educational quality.

The committee is impressed by the design and functioning of the quality assurance system. During the site visit both lecturers and students stated that they are involved and their opinions are heard in reference to the quality of the teaching. The committee also had the opportunity during the visit to talk to members of the Educational Committee. It remarked that this group of students and lecturers is very involved in the quality of the education and actively influences the optimization of the quality. It suggests that a more formalized mode of working might enhance the work of the Educational Committee as would a more proactive and strategic approach to quality enhancement (think of periodical meetings with students and teaching staff to evaluate courses and the curricula, and structurally monitoring of intake and completion rates).

Improvements in response to the previous study visit

The critical reflection describes which changes have been made based on the recommendations of the previous programme assessment committee. The current committee confirmed that a large number of the recommendations have been satisfactorily implemented. For example, the focus on internationalization has been improved, the introduction of three specializations contributes to the focus and coherence in the master's programme, and the room for individualized study programmes has been augmented in the master's programme.

The committee concludes that the programmes are paying sufficient attention to the measures for improvement suggested by the previous committee. It draws attention to the need for further improvement of the labour market orientation in the bachelor's programme (see 1.1.2 and 2.1.3) and the staff-student ratio (see 2.1.6). The committee ascertained that the

bachelor's and master's programme properly monitor and control the quality of the education provided.

2.2. Considerations

The committee concludes that the programmes, the personnel and the programme-specific facilities enable the bachelor and master students to realize the final qualifications. It values the dedicated focus on scientific and academic training in both programmes. It notes that the attention paid to the professional practice and vocational guidance in the bachelor's curriculum is limited. It advises improving this situation, which is also a wish expressed by the students and alumni.

The committee confirmed that the curricula of both programmes are substantial and have a clear, sophisticated design. The four distinguished areas of competence (the domain of human movement sciences, academic level of thought and practice, professional and personal development, and human movement research) contribute to the coherence of both programmes. The committee advises providing more room for choice and specialization in the bachelor's curriculum. It appreciates the increasing attention being paid to internationalization in both programmes.

The programmes' intake rates are substantial, although diversity of the inflow of bachelor students might be improved. The committee is concerned about the high drop-out rate within the first bachelor year. It recommends clearly communicating about the expected level of knowledge and skills to students before they start the programme. Furthermore, it advises exploring the possibilities to implement a procedure of interviewing, testing and assessing students prior to entering the bachelor's programme. The completion rates of both programmes have scope for improvement but are sufficient compared to institution and domain norms.

The committee concludes that the staff is good, consisting of motivated lecturers who have the correct expertise and level. It compliments both programmes on the fact that all lecturers are actively involved in teaching, including the deployment of professorial chairs in the first bachelor year. It established that the work pressure remains too high and thus expects the programmes to further improve the staff-student ratio to a more acceptable level as soon as possible.

The committee confirmed that the institutes are well aware of the quality of the teaching environment, in which lecturers and students are closely involved and well supervised.

2.3. Conclusion

Bachelor's programme in Human Movement Sciences: the committee assesses Standard 2 as **satisfactory**.

Master's programme in Human Movement Sciences: the committee assesses Standard 2 as **satisfactory**.

Standard 3: Assessment and achieved learning outcomes

The programme has an adequate assessment system in place and 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. The tests and assessments are valid, reliable and transparent to the students.

3.1. Findings

In this standard the findings regarding the assessment method are reproduced (3.1.1) and then the question is addressed of whether students actually realise the targeted final qualifications of the bachelor's and master's programme (3.1.2).

3.1.1. Assessment and evaluation system

The committee ascertained whether the programme has an adequate system of assessment. It examined the assessment policy, the procedures involved with assessment, the forms of assessment and the functioning of the examination committee. It confirmed that there is an adequate system in place.

Assessment policy

At the university level, assessment strategies and procedures are described in the document *Passing the Test – Assessment Policy and Assessments* (2008). According to the critical reflection, this policy is being translated into an Assessment Plan for the Center for Human Movement Sciences under supervision of the examination committee. The Assessment Plan contains a description of learning objectives per course, programme coherence, assessment methods and planning, assessment procedures and criteria, responsibilities of examiners and the examination committee, and periodic evaluation according to the quality assurance protocol. Additionally, formal assessment regulations are outlined in the Teaching and Examination Regulations of the bachelor's and master's programme. It is available online for students and staff members, as will be the Assessment Plan when the final version appears in December 2012. During the site visit the committee found that the policy documents are used by the Educational Committee and the examination committee for quality assurance goals.

The committee studied the draft version of the Assessment Plan as well as the Teaching and Examination Regulations during the site visit and confirmed that they are comprehensive and adequately address all aspects of assessment. It noted that currently the assessment policy is translated into practice via short, mainly informal, communication lines. It agrees with the management that composing the formal Assessment Plan, thereby finetuning the elements of assessment practice, is a vital step in improving the quality of the bachelor's and master's programme. It is convinced that this will improve the efficiency and reduce the risk of inconsistency and inaccurate assessment procedures. The faculty's assessment policy covers all steps in the assessment process, from the preparation to the organization of assessments.

Examination committee

The examination committee monitors the quality of the bachelor's and master's programme to ensure that the students achieve the final attainment levels. It is responsible for ensuring the quality, organization and coordination of examinations according to the regulations described in the programmes' Teaching and Examination Regulations. According to the critical reflection, the examination committee plays an enhanced supervisory role in the implementation of the faculty's Assessment Plan.

During the site visit the committee spoke to the examination committee about its role in the implementation of the assessment policy and monitoring the quality of assessment. The examination committee has taken certain measures to guarantee the quality of assessment. For instance, it reviews hit rates of exams (when the hit rate is lower than 50 percent, the examination committee talks to the examiner involved to find a solution) and peer review of exams prior to actual examination is obligatory. The study advisor provides the examination committee with advice based on students' remarks and feedback regarding assessment. The senior advisor for quality assurance of educational content attends the meetings of the examination committee, thereby facilitating a balance with the Educational Committee and securing short communication lines with management.

The committee learned that the examination committee's attitude was very involved and committed. Still, it seemed rather reactive in monitoring the quality of assessment. The committee found that it puts great emphasis on the teachers' own responsibility in safeguarding this quality. While the committee is convinced of the proper quality of assessment, it expects a more proactive role of the examination committee. For instance, by checking the relation between learning objectives and the content of exams up front. Other suggestions include periodically taking test samples of assignments in both programmes or sharing good assessment practices with the teaching staff. Additionally, the committee feels that more formal procedures and more structured inspection of the quality of assessments could enable the examination committee to perform their tasks more efficiently, thereby saving time that can be used for more proactive and in-depth analyses of specific elements of assessments. It was pleased to note that important improvement measures are being taken with the composition of the faculty's Assessment Plan. It specifically stresses the importance of the role of the examination committee regarding the quality evaluation of students' theses (see section on *Thesis process* below).

Process concerning assessment

In the critical reflection, the most important elements of the assessment procedure are described. It states that each academic year is divided into four blocks of ten weeks, with the last three weeks of each block being dedicated to self-study and exams. Students must be awarded a grade of at least 5.5 out of 10 to pass a course. They are allowed to take one resit per course, and resits take place within three weeks after the written exams. Assessments are distributed as evenly as possible over a course. The number of assessments depends partly on the learning goals and the design of the course. Examination dates are published in the course handbooks and on the timetable. The forms of assessment, assessment procedure, dates and evaluation criteria are described in the course guidebooks available on Nestor. During the interview with students, it was evident that they are well aware of the criteria. Students are also satisfied with the possibilities to submit complaints if necessary, via the specific lecturer or supervisor, student year representatives, the Educational Committee and the examination committee.

Forms of assessment

The critical reflection provided an overview of the methods of examination in the bachelor's and master's curricula. A wide range is available, including individual and group assignments, multiple-choice questions, open-ended questions, essay questions, practical assignments, written assessments (like papers and theses), oral assessments (such as student peer review and presentations) and a poster presentation. The weighting attached to the different forms of assessment is specified in the course guidebook. The different assessments are spread as evenly as possible throughout each course. The last three weeks of the block are reserved for self-study and a concluding assessment, like a written examination. According to the critical

reflection, the assessment methods used for each course are consistent with the content and the intended learning outcomes of the course.

During and in preparation for the visit, the committee looked at the different assessments and specifically the manner in which group products are evaluated. It confirmed that the assessments are adequate in terms of level and content. In addition, it feels that the assessments are sufficiently varied, well considered and attuned. It is positive about the various assessment methods testing presentation skills. It also values the imposed rule that states that a minimum of 25 percent of the questions in written exams must be open-ended or essay questions, because this contributes to active learning and allows lecturers to assess the underlying thinking and learning processes. During the visit students also indicated that they were satisfied with the variety of assessment forms and how the programme dealt with assessment (including providing feedback on test results). They rated assessments as representative and appropriate.

Thesis process

According to the critical reflection, the *Bachelor Research Project* (20 EC) concludes the bachelor's degree programme. In this research project questions are studied in experimental lab-based or field-oriented study designs. The predetermined research subjects are organized according to the specializations of the master's programme and, if possible, are selected according to the students' preferences. Usually, the projects are linked to staff research. Most projects are conducted in groups of two students under the supervision of a staff member, but they lead to an individual bachelor thesis in the form of a scientific article and oral presentation (both in Dutch). During the research project students receive feedback on their progress and performance, and they must discuss their work with peers and give and receive feedback on each other's work. The bachelor research project and report are assessed by the thesis supervisor and the coordinator of the bachelor research project, using a standard assessment form. The students' work is graded according to the guidelines of academic writing, which are explained to students in the Academic Writing reader.

The final test of the master's programme is the *Master Research Project* (40 EC). Master students perform an empirical study, mostly within their chosen field of specialization. The specific research subject is selected by the students themselves. They individually design and perform the research, analyze the data and report on the results. To complete the research project, master students must write a research article in English in the form of a manuscript for publication, the master thesis. Additionally, students produce a scientific poster and give an oral presentation to a qualified committee and peers at a forum (including a discussion of the research results). The assessment of the *Master Research Project* takes place in several stages, in which different staff members are involved. The principal supervisor of the project is involved in all stages. During the site visit the committee was told by lecturers and the examination committee that standard assessment forms are being used. If the research project is performed externally, the responsible staff member will include the remarks of the external supervisor in the assessment and grading. As noted in the critical reflection, the master thesis is always assessed by a second assessor, a staff member of another specialization. After deciding whether the thesis meets the requirements, the supervisor and the second assessor discuss the quality of the paper. Together, they also assess the oral presentation at the forum. The scientific poster is graded by at least three staff members who attended the poster presentation. The principal supervisor determines the final grade, taking the considerations of the other assessors into account.

Overall, the committee is positive about the bachelor's and master's thesis procedures, as were the students and alumni interviewed during the site visit. Nevertheless, the committee got the impression that the standard thesis assessment forms were not always filled in by two supervisors. It expects both supervisors to properly use the available forms and, to assure blind assessment takes place by the second supervisor, the committee suggests a more accurate monitoring of the use of standard assessment forms. Additionally, the bachelor thesis assessment forms might be extended with room for actual feedback to improve its educational value. The committee believes the examination committee could be more active and proactive on this point, without creating useless bureaucracy. For example, the examination committee could periodically reassess some randomly selected bachelor and master theses and the corresponding assessment forms. The committee suggests incorporating an improvement of the monitoring system on this point in the faculty's Assessment Plan.

3.1.2. Achievement of the learning outcomes

The committee assessed the achieved learning outcomes by inspecting a selection of the bachelor and master theses (see Appendix 7). It studied fifteen of each, together with the associated assessment forms. Consideration in selecting the theses was given to the grading (low, average and high grade) and the specializations.

The committee members read the theses and assessed their presentation of the problem and review of the literature, methods and justification, conclusion and discussion, structure, legibility and verification. By and large, they agreed with the grades awarded by the supervisors. In general, the grading was fair and reflected the differences in the dissertations. The committee was pleased to observe that the final papers of both programmes were well written and of an acceptable level. In general, the theses and research reports were based on relevant and interesting questions which were sufficiently clearly formulated and contained a relevant theoretical framework, correctly applied research methods and relevant discussions based on the research results.

The committee concludes that the overall quality of the bachelor and master theses is satisfactory, and graduates of the both programmes achieve the required level. In accordance with the final qualifications, the committee found a clear distinction in the level of the achieved learning outcomes between the bachelor theses and the master theses.

Alumni

The committee investigated the job positions of graduates of the bachelor's and master's programme in Human Movement Sciences and whether they were adequately prepared for them. In line with the limited attention paid to labour market opportunities in the bachelor's programme's final qualifications and curriculum, the critical reflection report states that hardly any bachelor students apply for a job after graduation. The committee is unhappy about the absence of information on career outcomes for bachelor students. Nevertheless, based on the interviews with bachelor students, information provided on the reading table during the site visit and the bachelor theses examined, the committee is convinced of the effectiveness of the bachelor's programme in training students to acquire the necessary academic skills to practise a relevant profession.

The critical reflection refers to the Alumni Invent 2012: an online questionnaire filled in by 136 alumni of the master's programme in the spring of 2012. The results reveal that 69 percent of the master graduates found a job within six months after graduation, and 73 percent of the alumni found a job at an academic level. A substantial proportion (30 percent)

of the master graduates ended up doing a PhD, in total nearly half of the alumni are currently professionally involved in scientific research. Besides academic positions (such as physiotherapist, occupational therapist, teaching at a university or a management-level job), employment is found in the commercial sector, education and other non-profit sectors. The critical reflection states that feedback from the professional field confirms that these alumni are valued for their academic qualities, like independent thinking, a critical attitude, and proper research and reporting skills.

Additionally, during the site visit the committee spoke with alumni of the master's programme. Similar to the results of the Alumni Invent, they appreciated the elements of the bachelor's and master's programme that trained analytical and critical thinking, independent functioning, initiative and commitment. They concurred that the programmes gave them a proper mindset that they can apply outside work as well. Although they felt that more attention could be paid to preparation for the professional practice during the programmes, they indicated that they were definitely satisfied with their ultimate career.

3.2. Considerations

The committee concluded that the programme has an adequate system of assessment and can demonstrate that the target final qualifications are realized. It is pleased to see that the university-wide assessment policy is being translated for the faculty and both programmes. It found that the examination committee is very involved and committed but could act more proactively in monitoring the quality of assessment. The assessments as a whole are sufficiently varied and well considered according to the committee and adequately reflect the contents of both programmes and the students' level. The bachelor's and master's thesis procedures are satisfactory, even though the committee advises the staff to apply the available, itemized thesis evaluation protocols more strictly.

The committee concluded that the bachelor and master students acquire an adequate final level by the end of the bachelor's and master's programme. This was confirmed by the theses evaluated by the committee. It found that the target final qualifications of both programmes were realized, and there is an adequate difference in the level of achieved learning outcomes between the bachelor and the master theses. Moreover, it concluded that graduates of the bachelor's and master's programme are sufficiently prepared for relevant job positions.

3.3. Conclusion

Bachelor's programme in Human Movement Sciences: the committee assesses Standard 3 as **satisfactory**.

Master's programme in Human Movement Sciences: the committee assesses Standard 3 as **satisfactory**.

APPENDICES

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

Prof. dr. N. Fowler is Head of the Department of Exercise and Sport Science at MMU where he teaches applied biomechanics at both undergraduate and post graduate level. He has been a Fellow of the UK Higher Education Academy since its creation in 2007. He is a member of the British Association of Sport and Exercise Sciences (BASES) and has held both research and support accreditation continuously since 1995. He has been the Chair of both the Biomechanics Section and Education and Training Committee of BASES. Neil led the development of the Undergraduate Endorsement scheme for the Association, the committee of which he still Chairs. In providing applied biomechanics support to athletes Neil has worked with the British Athletics and Target Shooting teams at National, European, World, Olympic and Paralympic competitions. With over 40 published papers, his main areas for research have been low back pain, the biomechanics of jumping and the energetics of wheelchair propulsion.

Prof. dr. R.G.J. Meulenbroek is director of the master's programme Cognitive Neuroscience at Radboud University Nijmegen. Prof. Ruud Meulenbroek is experimental psychologist specialized in the field of neurocognitive processes underlying human motor control. He received his PhD in Social Sciences at the Radboud University (RU) Nijmegen, The Netherlands in 1989. Since then he is senior researcher at the Donders Institute for Brain, Cognition and Behaviour at RU, as of 2007 as full professor. Together with Prof. David Rosenbaum (Pennsylvania State University, PA, USA) and Prof. Jon Vaughan (Hamilton College, New York, USA) he has developed a seminal theory of posture-based motion planning. He has coordinated and participated in national as well as European large-scale, interdisciplinary research projects on human task performance and is programme director of the two-year researchmaster programme in Cognitive Neuroscience of the RU.

Prof. dr. P. Wylleman is professor Sportpsychology at the Vrije Universiteit Brussel. Paul Wylleman obtained his PhD in Psychology at the Vrije Universiteit Brussel on the role of interpersonal relationships in talent development and conducted a post-doctoral study at Michigan State University. He is appointed as professor at the Vrije Universiteit Brussel teaching Sport Psychology, Human Resources and Psychological aspects of leisure time at the faculty of Physical Education and Physiotherapy and the faculty of Psychology and Educational Sciences. He is head of the department Topsport and Study at the Vrije Universiteit Brussel. He is also acting President of the European Federation of Sport Psychology (FEPSAC).

Prof. M. Rodgers PT, PhD is George R. Hepburn Dynasplint Professor and Chair, Department of Physical Therapy and Rehabilitation Science, University of Maryland School of Medicine. She is also Senior Advisor for the National Institute for Biomedical Imaging and Bioengineering (NIBIB) at the National Institutes of Health (NIH). Dr. Rodgers earned her Physical Therapy degree at the University of North Carolina, Chapel Hill, and her PhD in Physical Education/Biomechanics from the Pennsylvania State University. As Director of the Pilot & Exploratory Studies Core, Dr. Rodgers is heavily involved in the mentorship, educational and dissemination efforts of the University of Maryland Claude D. Pepper Older Americans Independence Center. In her NIBIB/NIH advisory role, Dr. Rodgers facilitates support of technology development for individuals with disability, rehabilitation, and healthy independent living.

R. Plas, BSc is a second year student of the research master Fundamental and Clinical Human Movement Sciences at the VU University Amsterdam. In August 2011, he finished the bachelor's programme in Human Movement Sciences at the VU University Amsterdam. His current research is focussed mainly on the muscle characteristics of the common marmoset (a small new world monkey). The research will be performed partly at the VU University in Amsterdam and partly at the MMU in Manchester. In his last bachelor year and first research master year he acted as student assessor in the program committee which is a student representative advising the faculty board on educational matters.

E. Middeljans, BSc is student of the master's programme in Human Movement Sciences at the University of Groningen at the Human Movement Sciences faculty. In September 2011, he started the master's programme in Groningen at the rehabilitation department. His interest is mainly in the field of motor control. During his study he was actively involved in the student association, which included a function as president of the board. Last academic year he acted as chairman of ProMove, which is a student council advising their faculty board on all student-related (mostly educational) matters.

Appendix 2: Domain-specific framework of reference

Agreed upon in March 2012 by:

Faculty of Human Movement Sciences - VU University Amsterdam

Center for Human Movement Sciences - UMCG / University of Groningen

Domain-specific frame of reference

The domain-specific frame of reference is intended to cover the Bachelor's and Master's degree programmes of both the Faculty of Human Movement Sciences of VU University Amsterdam and the Center for Human Movement Sciences of the University Medical Center Groningen.

This DSFR represents the current situation and will continue to develop as a product of cooperation between HMS Amsterdam and HMS Groningen. As far as possible, we took the international position in the field of Human Movement Sciences into account.

Definition of the field

Human Movement Sciences (HMS) is concerned with the systematic and scientific in depth study of human movement and the application of its body of knowledge to movement-related scientific and societal issues. The emphasis is on both typical and atypical movement and conditions of movement.

The field of HMS has a strong multi-disciplinary character, with its roots in practical disciplines such as physical education and physiotherapy, and scientific disciplines such as psychology, pedagogy, physiology, (functional) anatomy, biomechanics and the neurosciences. Research questions focus on understanding how the brain regulates human movement, how movements are learned, how structure influences function, and how processes such as recovery, learning and aging are influenced by environmental and physical factors.

Human movement has many facets that evoke questions about molecular and cellular structures, musculoskeletal functioning, the relation between perception and movement, the development of the motor system, motor learning, movement coordination, ergonomics, rehabilitation and tools and equipment to support movement. As such, HMS is strongly involved in health care, sports and ageing and is therefore intrinsically connected with important societal issues.

Orientations

HMS considers human movement as the outcome of a permanent interaction between motor, cognitive and perceptual processes in a meaningful context. The focus is on understanding and optimizing motor behaviour. Research and education are oriented on three interrelated fields: 1. Sports, learning and performance, 2. Rehabilitation and functional recovery and 3. Motor function, cognition and healthy ageing. In this respect the Groningen and Amsterdam programmes are highly comparable, but approaches are slightly different. In the Groningen bachelor's programme the focus is more on acquiring methodological and statistical skills, whereas in Amsterdam the focus is more on acquiring practical experimental proficiency. The Master's programmes also show some differentiation: the Groningen two-year master's programme intends to prepare students for both research and other academic careers. In Amsterdam, both study lines are -to some extent-separated: the two-year research master intends to prepare students for a research career, whereas the one-year master, in principle, prepares for other HMS related functions.

The content of the Groningen and Amsterdam programmes also have slightly different orientations. In general, HMS Groningen is more oriented towards the neurosciences while in HMS Amsterdam biomechanics and exercise physiology are more prominent. More specifically, within the sports domain, in HMS Amsterdam the emphasis is on individual sports and individual athlete capacities, whereas in HMS Groningen, research focuses traditionally more on team sport and group dynamics. Another distinction can be seen in the area of ageing, where HMS Groningen concentrates on what is coined “healthy ageing” while HMS Amsterdam, as illustrated with its MOVE-AGE programme, focuses more on age-related afflictions. As mentioned before, it should be kept in mind, that these differences are gradual!

HMS Amsterdam and HMS Groningen are the only two self-standing HMS programmes in the Netherlands. In Maastricht and Nijmegen, HMS is a main subject in Biomedical Sciences education.

Educational level

Both HMS Amsterdam and HMS Groningen emphasize the scientific nature of their programmes. Students become knowledgeable and highly trained academics and researchers. At the bachelor's level they acquire and apply existing knowledge and learn to perform scientific research under close supervision. At the master's level they learn to function as full academics, independently gathering new knowledge through scientific study and communicating this knowledge on a professional level.

International position

The international position of the Dutch HMS programmes is productive, which we conclude on the basis of the following arguments:

- The HMS programmes have served as an example for new HMS programmes elsewhere in Europe. More specifically, HMS Trondheim (Norway) and HMS Marseille (France) and Physical Education and Sport Sciences in Budapest (Hungary) have adopted comparable curricula;
- Both HMS Groningen and HMS Amsterdam have an extensive international network, which is intensively used within their educational contexts. Up to 15% of the master students finish their graduation research projects abroad and both programmes comprise courses taught by foreign professors. Furthermore, both HMS Groningen and HMS Amsterdam regularly receive foreign students and staff, mobility and exchange are increasing;
- HMS alumni traditionally do quite well in the international setting¹. Every year about 2 to 3 alumni accept a position as PhD student abroad and some of our alumni have accepted top positions in HMS related faculties all over the world, such as Germany (Köln, Leipzig), France (Marseille), Norway (Trondheim, Oslo), Switzerland (Zürich), GB (Manchester, Birmingham, Exeter, Glasgow), USA (Boston), Australia (Perth, Melbourne).

Nevertheless, HMS Groningen and HMS Amsterdam still aim to strengthen their international positions in the field of Human Movement Sciences.

¹ Numbers are from HMS Amsterdam. For Groningen, which is a relatively young study programme, numbers are not yet available.

Domain Specific Learning Outcomes

For the students the Bachelor's degree programme yields:

- knowledge of and insight into the field of Human Movement Sciences;
- acquaintance with an integrative approach to the understanding of human movement;
- skills necessary to do well in an academic environment. These skills include scientific reading and writing, mathematics, computer and study skills, supervised scientific research and reporting on the required level (from scientific to lay audiences);
- preparation for a future career, either in science (as in a follow-up master's programme), or as a professional.

For the students, the Master's degree programme yields:

- specialized knowledge of, skills related to and insight into a selected field of Human Movement Sciences;
- the ability to apply an integrative approach to the study of human movement;
- skills necessary to do well within a specific field in either a purely academic environment, or an academic professional environment. These skills include scientific reading and writing, performing scientific research and reporting on the required level (from scientific to lay audiences);
- preparation for a future career, either in science (as in a follow-up PhD position) or as an academic professional.

Appendix 3: Intended learning outcomes

Bachelor's programme

Learning outcomes in terms of competences

Global objectives and profile

The aim of the Bachelor's degree programme is for the student to:

- acquire content-related knowledge of, skills related to and understanding of the field of human movement sciences (HMS);
- acquire an academic level of thought and practice;
- prepare for further study in HMS or a related field. The student has the right to admission to the University of Groningen's Master's degree programme in HMS.

These global objectives are in concordance with the following profile for the Groningen University Bachelor:

The University Bachelor in HMS is a broadly educated and academically trained graduate with knowledge of movement, movement coordination, motor problems, and ways of influencing motor behaviour. University Bachelors have a broad understanding of the field of the human movement sciences, and the necessary skills to read and interpret scientific literature. In addition, they are familiar with methodology and data analysis, and have the necessary skills to collect, analyze and interpret empirical data under supervision of staff. Furthermore, they are able to translate the acquired knowledge and skills into relevant human movement science issues and communicate this in the Dutch language.

The profile is the guiding principle for the learning outcomes of the programme.

Structure of the learning outcomes

The structure of the learning outcomes of HMS at the University of Groningen is shown in the figure below. There are nine core competences, divided into four areas of competence:

- I. The domain of Human Movement Sciences;
- II. Academic level of thought and practice;
- III. Professional and personal development;
- IV. Human movement research.

These areas of competence apply to both the Bachelor's and the Master's degree programme but are developed at different levels. The HMS-specific elements of the learning outcomes are related to the Domain-Specific Frame of Reference (DSFR) that has been developed together with the Faculty of Human Movement Sciences of the VU University Amsterdam.

The Bachelor's degree programme represents a multidisciplinary approach to studying human movement behaviour. An array of behavioural and biomedical course units is offered to begin with, and the disciplines become more integrated over the course of the programme. The fields of interest are Healthy Ageing, Sport and Rehabilitation. Typical for the Groningen Bachelor's programme is the accent on neurosciences and methodological and statistical skills.

A Human Movement Scientist at the Bachelor's level

9

... is skilled in communicating the results of his research

8

... is skilled in conducting research in a human movement context

Integration and Application
Human Movement research
IV

I
**Domain of Human
Movement Sciences**
Emphasis on knowledge

1

... is proficient in the domain of
human movement sciences

2

... is proficient in a specific area
of human movement research

II
**Academic level of
thought and practice**
Emphasis on skills

3

... has basic instrumental and
intellectual skills

4

... has a scientific approach

5

... is skilled in communicating
and collaborating

III
**Professional and personal
development**
Emphasis on behaviour

6

... places matters in their
scientific, social and
organizational context

7

continuously works on his
personal and professional
development

Final qualifications of the bachelor's programme

AIM OF THE PROGRAMME

The aim of the programme is for the student to:

- acquire content-related knowledge, skills and understanding in the field of human movement sciences (HMS)
- acquire an academic level of thought and practice
- prepare for a further study career in the field of human movement sciences or a related field, with the right to admission to the Master's degree programme in Human Movement Sciences at the University of Groningen.

LEARNING OUTCOMES OF THE PROGRAMME

The learning outcomes of the programme are divided into the following areas of competence:

- I The domain of human movement sciences
- II Academic level of thought and practice
- III Professional and personal development
- IV Human movement research

Within these four areas we identify a total of nine partial qualifications.

A Bachelor of Science in human movement sciences:

- 1 is proficient in the domain of human movement sciences (I)
- 2 is proficient in a specific area of human movement sciences research (I)
- 3 has basic instrumental and intellectual skills (II)
- 4 has a scientific approach (II)
- 5 is skilled in communicating and collaborating (II)
- 6 places matters in their scientific, social and organizational context (III)
- 7 constantly works on his personal and professional development (III)
- 8 is skilled in conducting research in a human movement science context (IV)

- 9 is skilled in communicating the results of his research (IV).

The content and level for each partial qualification are as follows, with a specification of the associated learning outcomes:

1 A Bachelor of Science in human movement sciences is proficient in the field of human movement sciences.

A Bachelor of Science in HMS has a wide knowledge and understanding of the principles of human movement, learning to move, motor problems and ways of influencing motor behaviour. He is familiar with the history, theories and developments in the field of human movement sciences and is able to expand his knowledge through study.

Specification: a Bachelor of Science in HMS has:

- knowledge and understanding of the historical development of the field of human movement sciences
- knowledge and understanding of the anatomy of the human musculoskeletal system and biomechanical characteristics
- knowledge and understanding of human physiology
- knowledge and understanding of the pathology of human movement
- knowledge and understanding of the determinants of motor behaviour, adaptive ability and the possibility of influencing these
- knowledge and understanding of theories of motor control and perception
- knowledge and understanding of pedagogy, psychology, sociology and what they can contribute to the understanding of human movement

- knowledge and understanding of different methods of movement analysis and exertion physiology
- knowledge and understanding of the emergence and progress of diseases and disorders that affect motion.

2 A Bachelor of Science in human movement sciences is proficient in a specific area of human movement research.

A Bachelor of Science in HMS is familiar with a process-driven approach to human movement from a coherent medical-biological and behavioural-scientific perspective, paying attention to both fundamental and applied research (and its findings) in the fields of ageing, rehabilitation and sport, with particular emphasis on the control of the musculoskeletal system and on understanding and influencing brain, learning and change processes in relation to environmental factors.

Specification: a Bachelor of Science in HMS has:

- knowledge and understanding of medical-biological aspects of human movement, motor control, motor learning processes and motor skills development
- knowledge and understanding of behavioural-scientific aspects of human movement, motor control, motor learning processes and motor skills development
- specific knowledge and understanding of neuroanatomical, neurophysiological and neuromechanical aspects of movement
- knowledge and understanding of different methods and techniques of movement analysis
- knowledge and understanding of theories with regard to motor control and coordination, motor recovery and rehabilitation, movement, ageing and health, and sport, learning and performance
- knowledge and understanding of the relationship between fundamental and applied human movement sciences research.

3 A Bachelor of Science in human movement sciences has basic instrumental and intellectual skills.

A Bachelor of Science in HMS has mastered the basic cognitive, methodological, technological, mathematical and linguistic skills required for an academic level of thought and practice.

Specification: a Bachelor of Science in HMS has the following basic knowledge and skills that can be applied in an academic and human movement sciences context:

- written expression skills (form, content, use of language)
- verbal expression skills for presentations and lectures
- analytical and synthetic skills
- reasoning, reflection and judgment skills
- passive proficiency of the English language
- skills in planning and organizing research activities
- using mathematical calculations and techniques
- using methodological definitions and techniques
- making and interpreting statistical calculations
- using qualitative and quantitative measurement techniques
- using measuring tools and other specific movement recording technology
- computer skills in particular programs to analyze human motor function
- using appropriate information and communication technologies, such as Word, spreadsheets, search engines and databases.

4 A Bachelor of Science in human movement sciences has a scientific approach.

A Bachelor of Science in HMS is able to take a systematic approach towards research questions, problem analysis, literature study, hypothesis formulation, design and implementation of research and processing and reporting results.

Specification: a Bachelor of Science in HMS is able to tackle research questions in a systematic way through:

- using skills in critical reflection and problem solving
- using an elementary knowledge and understanding of research techniques and the associated conceptual framework
- using skills in searching for academic literature
- reading and summarizing relatively simple scientific articles
- using skills in integrating knowledge from different scientific fields
- formulating a scientific research question and hypotheses
- translating the research question into a research design and a work plan
- conducting supervised research

- collecting and processing data
- analyzing and interpreting the results
- documenting research findings in a scientific report.

5 A Bachelor of Science in human movement sciences is skilled in communicating and cooperating.

A Bachelor of Science in HMS is able to work with and for others at an academic level. He can communicate clearly with colleagues and laypersons alike about his work and its results both verbally and in writing, and is able to partake in a scientific or public discussion.

Specification: a Bachelor of Science in HMS is able to:

- apply basic instrumental and intellectual skills (see 4) when communicating and collaborating with others
- summarize and present the results of independent study, assignments and discussions orally and in writing to colleagues as well as laypersons
- make an active contribution to the organization and planning of human movement sciences research
- make an active contribution to communication with test subjects, patients etc.
- report in writing to colleagues and laypersons about own simple and limited human movement sciences research and its findings
- report orally to colleagues and laypersons about own simple and limited human movement sciences research and its findings
- actively follow and participate in an academic discussion
- work on projects in a team.

6 A Bachelor of Science in human movement sciences takes the scientific, social and organizational contexts into consideration.

A Bachelor of Science in HMS is aware of academic, social, technological and ethical opinions and methods in the context of his work and takes these into account. He demonstrates affinity with the working environment of human movement scientists.

Specification: a Bachelor of Science in HMS is able to place human movement sciences knowledge and research into broad scientific-theoretical and social contexts. To this end, he has:

- knowledge and understanding of the historical development of the field of human movement sciences

- knowledge and understanding of scientific-theoretical principles, human movement sciences theories and models
- knowledge of and skills in integrating knowledge from different scientific domains
- knowledge and understanding of social aspects of human movement
- knowledge and understanding of ethical and normative aspects of human movement
- knowledge and understanding of organizational aspects of human movement
- the ability to actively follow and participate in a social debate on themes related to the field of human movement sciences
- affinity with the working environment of human movement scientists.

7 A Bachelor of Science in human movement sciences works on his personal and professional development.

A Bachelor of Science in HMS functions adequately in his work and study environment.

He performs his work and duties in a planned and careful way, in open and functional synergy with his environment. He demonstrates commitment, responsibility and the ability to reflect critically on his own and others' actions, and is accustomed to learning from himself and others based on self-reflection and feedback. He works on further developing his content-related knowledge, academic skills and related professional behaviour.

Specification: a Bachelor of Science in HMS functions adequately in his work and study environment by:

- performing the duties assigned to him systematically and meticulously
- displaying enthusiasm and a sense of responsibility
- identifying problems and situations and approaching them critically and self-critically
- collaborating constructively with colleagues
- being able to give and receive feedback
- identifying gaps in his knowledge and revising and expanding his knowledge through study
- analyzing, assessing and if necessary modifying his own conduct.

8 A Bachelor of Science in human movement sciences is skilled in conducting research in a human movement context.

A Bachelor of Science in HMS is able to develop new knowledge and understanding on the basis of the content-related, academic and professional competences he has acquired through simple and limited human movement sciences research. He does so on the basis of a systematic approach to research questions, problem analysis, literature study, hypothesis formulation, research plan, collecting and processing data, and reporting findings.

Specification: a Bachelor of Science in HMS is able to conduct simple and limited human movement sciences research and to this end is trained to do the following under supervision:

- apply research techniques and the associated conceptual framework
- search for and use scientific literature
- formulate a scientific research question and hypotheses
- translate the research question into a research design and a work plan
- organize and plan the research
- collect and process data
- analyzing and interpreting the results
- documenting research findings in a scientific report
- present research findings orally

In addition, a Bachelor of Science in HMS is able to develop a simple exercise programme for a specific target group in a scientifically sound way based on given criteria.

9 A Bachelor of Science in human movement sciences is skilled in communicating the results of his research.

A Bachelor of Science is able to describe and present his research in accordance with academic standards.

As a final proof of proficiency, the Bachelor's graduation project is rounded off by writing a paper in the form of a final report and giving an oral presentation of the research during the tutorials and finally in a colloquium.

Specification: a Bachelor of Science in HMS is able to:

- document research findings in a scientific report
- orally present and defend research findings to colleagues and laypersons.

Level of learning outcomes in relation to the Dublin descriptors

Knowledge and understanding

Bachelor's graduates in HMS have a broad and general theoretical knowledge of the field, together with a basic understanding of the principles of scientific research. They also have basic knowledge of how the brain coordinates movement and the interactive nature of this. They have knowledge and understanding of the development of the locomotor system as well as of the structure and functioning of the nervous system. They are aware of the latest major theories on human motor learning and are familiar with the principles of the methodology and statistics required for the analysis of research data.

Application of knowledge and understanding

Bachelor's graduates in HMS are trained in collecting, analyzing and processing research data related to issues in the research fields. They have learned to apply their knowledge and skills to designing a movement intervention programme and have learned how to conduct a (prestructured) research project. They are consequently able to demonstrate their ability to solve basic problems in the Human Movement Sciences and to report their findings in a satisfactory way in the Dutch language.

Appraisal

The continuous interaction between theoretical and applied topics produces graduates who are capable of critical appraisal of the field of HMS. They have learned to scientifically analyze movement-science problems and form an opinion of the quality of other people's research as well as their own. Increasing demands are made upon this competence over the course of the Bachelor's degree programme.

Communication

Written papers on research play an important role in the educational process because they form the core of scientific communication. Graduates in Human Movement Sciences are able to record the results of their own research in a satisfactory written report. They have learned to present their own or other people's research findings, and to defend these in critical debate with fellow students, specialists and the public.

Learning skills

Bachelor's graduates in HMS have learned to approach scientific problems in a relatively independent way. Furthermore, they have the ability to make choices within the field of HMS and are encouraged to show initiative. They demonstrate to be capable of active and independent learning by finishing their Bachelor's thesis in the third year. This can be regarded as a 'proof of competence' in which students demonstrate that they are fit for a Master's degree programme or a similar study.

Master's programme

Learning outcomes in terms of competences

Global objectives and profile

The aim of the programme is for the student to:

- acquire specialist subject knowledge, skills and understanding in the field of HMS;
- prepare to practice his profession as an academically trained human movement scientist;
- prepare for a career as a researcher in the field of HMS.

These general programme objectives are related to the following profile for the Groningen University Master:

The University Master in HMS is a self-aware, independent and critical academic, yet a team player, with a broad vision on human movement sciences and a comprehensive knowledge of fundamental interdisciplinary theories. This is combined with specialist mastery of a self-determined research theme within one of the specializations Motor function, cognition and healthy ageing, Sport, learning and performance, and Rehabilitation and functional recovery. University Masters in HMS are able to apply the acquired scientific knowledge, understanding and skills to existing and new situations independently, are able to make their own choices and can justify these. They can find and demonstrate the solution to (movement) problems and issues in a broad societal perspective. They are capable of performing scientific research within a specific research field in productive cooperation with other interested parties and their supervisors, and can formulate reports on this research both orally and in writing in the English language. Furthermore, they are capable of presenting their findings in a national and international perspective in the form of academic English-language publications. University Masters in HMS are competitive with regard to societal or scientifically-oriented careers on the basis of their scientific training and individual specialization.

This profile underlies the learning outcomes of the programme.

Structure of the learning outcomes

The structure of the learning outcomes of HMS at Groningen is shown in the figure below. There are nine core competences, divided into four areas of competence:

- I. The domain of Human Movement Sciences;
- II. Academic level of thought and practice;
- III. Professional and personal development;
- IV. Human movement research.

These competence areas apply to both the Bachelor's and the Master's degree programme but are developed at different levels. The HMS-specific elements of the learning outcomes are related to the Domain-Specific Frame of Reference (DSFR) that has been developed together with the Faculty of Human Movement Sciences of the VU University Amsterdam.

A multidisciplinary approach to the study of human movement behaviour is taken in the three specializations – Healthy Ageing, Sport and Rehabilitation – that typify the Groningen Master's degree programme. Students delve deeply into the themes of their chosen specialization and develop special interests upon which they can expand in their literature study, assignments and research. The specialized knowledge and skills the students acquire enable them to conduct independent research that will contribute to the field of Human Movement Sciences.

A Human Movement Scientist at the Master's level ...

9

... is skilled in communicating the results of his research

8

... is skilled in conducting research in a human movement context

Integration and Application

Human Movement research

IV

I

**Domain of Human
Movement Sciences**

Emphasis on knowledge

1

... is proficient in the domain of
human movement sciences

2

... is proficient in a specific area
of human movement research

II

**Academic level of
thought and practice**

Emphasis on skills

3

... has basic instrumental and
intellectual skills

4

... has a scientific approach

5

... is skilled in communicating
and collaborating

III

**Professional and personal
development**

Emphasis on behaviour

6

... places matters in their
scientific, social and
organizational context

7

continuously works on his
personal and professional
development

Final qualifications of the master's programme

AIM OF THE PROGRAMME

The aim of the programme is for the student to:

- acquire specialist subject knowledge, skills and understanding in the field of human movement sciences (HMS)
- prepare to practise his profession as an academically trained human movement scientist
- prepare for a career as a researcher in the field of human movement sciences.

LEARNING OUTCOMES OF THE PROGRAMME

The learning outcomes of the programme are divided into the following areas of competence:

- I The human movement sciences field
- II Academic level of thought and practice
- III Professional and personal development
- IV Human movement research

Within these four areas we identify a total of nine partial qualifications.

A Master of Science in human movement sciences:

- 1 is proficient in the domain of human movement sciences (I)
- 2 is proficient in a specific area of human movement research (I)
- 3 has basic instrumental and intellectual skills (II)
- 4 has a scientific approach (II)
- 5 is skilled in communicating and collaborating (II)
- 6 takes the scientific, social and organizational contexts into consideration (III)
- 7 constantly works on his personal and professional development (III)
- 8 is skilled in conducting research in a human movement context (IV)
- 9 is skilled in communicating the results of his research (IV).

The content and level for each partial qualification are as follows, with a specification of the associated learning outcomes:

1 A Master of Science in human movement sciences is proficient in the field of human movement sciences.

A Master of Science in HMS has a thorough and integrated knowledge and understanding of human movement, along with a broad and coherent view of human movement sciences and the underlying interdisciplinary theories, and is active in structuring and deepening his knowledge in an independent and focused manner.

Specification: a Master of Science in HMS has:

- acquired a thorough scientific (and research) basis of fundamental knowledge and understanding of human movement in relation to:
 - perceptual, cognitive, emotional and motor processes and how they relate to one another
 - the influence of physical environmental factors
 - neural plasticity and learning
- knowledge and understanding of human movement behaviour in relation to:
 - motor development
 - learning processes, adaptability and recovery processes
 - the influence exerted by personal and task-related factors and the social context
 - the influence of congenital and acquired defects
- knowledge and understanding of how movement behaviour can be influenced so as to support/remedy:
 - normal/abnormal physical functioning
 - normal/abnormal cognitive functioning
 - maximum physical and cognitive performance.

2 A Master of Science in human movement sciences is proficient in a specific area of human movement research.

A Master of Science in HMS has specialist knowledge and understanding of how movement behaviour comes about and can be influenced, and is able to deepen and apply that knowledge to a research topic chosen by him in one of the following research areas:

- Rehabilitation and Functional Recovery
- Motor Function and Cognition in Healthy Ageing
- Sport, Learning and Performance.

Specification: a Master of Science in HMS has:

- knowledge and understanding of the relationship between fundamental and applied human movement research, with an ability to connect the development of pure knowledge with seeking practical solutions to and applications for human movement problems
- knowledge and understanding of a process-driven approach to human movement, emphasising the relationship between:
 - the brain and movement behaviour
 - learning and development
 - change and recovery
 - flexibility and adaptation.
- A Master of Science in HMS specialized in *motor recovery and rehabilitation* is especially focused on the diagnosis and treatment of children and adults with disorders and functional limitations that hamper normal motor development and day-to-day functioning.
- A Master of Science in HMS specialized in *motor function and cognition in healthy ageing* is especially focused on the psychological, physiological and social consequences of movement, in particular the relationship between movement, lifestyle and the physical and mental condition and resilience in the elderly.
- A Master of Science in HMS specialized in *sport, learning and performance* is especially focused on the relationship between physical and mental determinants of learning and performance in sport and high-level sport and how they can be influenced.

3 A Master of Science in human movement sciences has basic instrumental and intellectual skills.

A Master of Science in HMS has mastered cognitive, methodological, technological, mathematical and linguistic skills required for an academic level of thought and practice and is able to apply them independently and critically in a specific human movement context.

Specification: a Master of Science in HMS has the following basic knowledge and skills and is able to apply them independently and critically in a specific human movement context:

- written expression skills (form, content, use of language)
- verbal expression skills for presentations and lectures
- analytical and synthetic skills
- reasoning, reflection and judgment skills
- active proficiency in the English language
- skills in planning and organizing research activities
- using mathematical calculations and techniques
- using methodological definitions and techniques
- making and interpreting statistical calculations
- using qualitative and quantitative measurement techniques
- using measuring tools and other specific movement recording technology
- computer skills in particular programs to analyze human motor function
- using appropriate information and communication technologies, such as Word, spreadsheets, search engines and databases.
- a comprehensive knowledge and understanding of the methodology of scientific research in general and human movement research in particular
- a comprehensive knowledge and understanding of statistical techniques and skills in applying these to human movement research.

4 A Master of Science in human movement sciences has a scientific approach.

A Master of Science in HMS is able to independently identify and analyze research topics and deal with them systematically and in a solution-driven manner in research that is relevant and organizationally practical, making critical use of scientific theories, ideas and techniques.

Specification: a Master of Science in HMS is able to design relevant and practical scientific research systematically, independently and critically by:

- using skill in critical reflection and problem solving
- using a comprehensive knowledge and understanding of research techniques and the associated conceptual framework
- identifying and analyzing a scientific problem
- carrying out appropriate literature surveys
- reading and summarizing scientific articles
- using skills in integrating knowledge from different scientific fields
- formulating a scientific research question and hypotheses
- translating the research question into a research design and a work plan
- conducting the research in a hands-on, supervisory and/or coordinating role
- collecting and processing data
- revising the work plan if necessary based on an interim evaluation
- analyzing and interpreting the results
- documenting research findings in a scientific report.

5 A Master of Science in human movement sciences is skilled in communicating and collaborating.

A Master of Science in HMS is able, based on his duties and responsibilities as an academic, to work with and for others in a national or international setting. He can communicate clearly with others in and outside his field about his work and its results both verbally and in writing, and is able to make a factual and critical contribution to a scientific or public discussion.

Specification: a Master of Science in HMS is able to independently:

- apply basic instrumental and intellectual skills (see 4) when communicating and collaborating with others
- communicate in writing and verbally with others in and outside his field about research and solutions to problems
- organize and plan human movement research
- communicate effectively with test subjects, patients, etc.
- report and discuss results with the research team
- communicate effectively with experts in the research field

- present a clear, time-limited scientific lecture
- create a poster presentation showing the results of his research
- conduct a scientific debate based on his own or someone else's research
- collaborate in an interdisciplinary project team
- work and communicate in a national or international setting
- communicate at academic level in English.

6 A Master of Science in Human Movement Sciences takes the scientific, social and organizational contexts into consideration.

A Master of Science in HMS analyzes movement problems in a broad scientific and social perspective and is able to integrate relevant ideas, opinions and methods in his scientific work.

He is able to operate satisfactorily in the broader setting of a professional organization.

Specification: A Master of Science in HMS is able to use his scientific work and research actively in broad scientific-theoretical and social contexts by:

- incorporating relevant scientific aspects and ideas in the research
- incorporating relevant social aspects and ideas in the research
- incorporating relevant ethical and normative aspects and ideas in the research
- incorporating relevant organizational and policy aspects and ideas in the research
- integrating knowledge from different scientific fields
- actively participating in or instigating a public debate on subjects related to HMS.

A Master of Science in HMS is able to operate satisfactorily as a human movement scientist in the broader setting of a professional organization by having the ability to:

- acquire an understanding of the institution's organizational structure
- make a worthwhile contribution to regular activities such as work meetings, staff meetings, training activities or policymaking
- check the progress of his research against appropriate organization-specific criteria.

7 A Master of Science in human movement sciences works on his personal and professional development.

A Master of Science in HMS operates independently in a professional working environment.

He handles work and duties in a systematic, meticulous, quality-conscious and dedicated manner in open, functional dialogue with his colleagues. He displays initiative, enthusiasm, critical and self-critical faculties and a sense of responsibility and is accustomed to learning from himself and others based on self-reflection and feedback. He thus works on deepening and broadening his subject and scientific knowledge and adjusting and enhancing his professional work as a human movement scientist.

Specification: a Master of Science in HMS operates independently in his work environment by:

- performing his duties in a systematic, meticulous, quality-conscious and dedicated manner
- displaying initiative, enthusiasm and a sense of responsibility
- identifying problems and situations and approaching them critically and self-critically
- handling the research environment (test subjects, supervisors, etc.) with care
- collaborating constructively with colleagues
- being able to give and receive feedback
- identifying gaps in his knowledge independently and revising and expanding his knowledge through study
- analyzing, assessing and if necessary modifying his own conduct
- displaying an understanding of his initial level and future professional profile as a specialist, academically trained human movement scientist.

8 A Master of Science in human movement sciences is skilled in conducting research in a human movement context.

A Master of Science in HMS is able to independently identify and analyze new or unfamiliar human movement problems in a specific research area, based on acquired subject, academic and professional skills, and deal with them systematically and in a solution-driven manner in research that is relevant and organizationally practical, making critical use of scientific theories, ideas and techniques.

Specification: A Master of Science in HMS is able to

conduct scientific research independently so as to:

- acquire a theoretical understanding of the control of movement and the relationship between movement, perception and cognition
- identify the determinants of movement and movement behaviour
- design, apply, analyze and assess programmes to influence movement behaviour systematically by way of these determinants

A Master of Science in HMS is therefore trained to:

- reflect critically and solve problems
- study and apply research techniques and the associated conceptual framework
- identify and analyze a scientific problem
- integrate knowledge from different scientific fields
- carry out literature surveys
- define and formulate a scientific research question and hypotheses
- translate the research question into a research design and a work plan
- conduct the research in a hands-on, supervisory and/or coordinating role
- collect and process data
- revising the work plan if necessary based on an interim evaluation
- analyzing and interpreting the results
- documenting research findings in an English-language scientific report
- present research findings orally

In addition, a Master of Science in HMS is able to use acquired specialist human movement knowledge and understanding in the design of a movement programme, an experiment or some other appropriate application or solution.

9 A Master of Science in human movement sciences is skilled in communicating the results of his research (IV).

A Master of Science in human movement sciences is able to document, present and defend his research in accordance with scientific standards.

As a final proof of proficiency, the Master's graduation project is rounded off by writing an English-language scientific article in accordance with the guidelines in force, giving a public poster presentation on it and defending it in a lecture to an expert forum.

Specification: a Master of Science in HMS is able to:

- document and present research findings to others in and outside his field
- incorporate and present his research findings in an English-language scientific article in accordance with the guidelines in force
- incorporate and present his research findings in an English-language scientific poster
- present and defend his research findings publicly in an English-language scientific lecture to an expert forum.

Level of learning outcomes in relation to the Dublin descriptors

Knowledge and understanding

Master's graduates have demonstrable knowledge and understanding of the theories and theoretical developments within the HMS. They have also acquired additional knowledge and understanding within a chosen field of specialization. The literature review the students have to write within this specialization and the subsequent Master Research Project, which concludes with an article written in English, make a serious demand on the student's knowledge and creativity, and offers opportunities for further intellectual and/or professional development.

Application of knowledge and understanding

Master's graduates are capable of analyzing and solving movement sciences problems. They have the intellectual capacity to digest new knowledge and cope with complex problems. They are able to analyze data independently and use this ability for the evaluation of movement intervention programmes.

Appraisal

At the crossroads of the development and application of theory, Master's graduates are capable of forming a critical scientific opinion on the basis of the available information. They can analyze and solve movement sciences problems and are able to form a wellconsidered opinion about the quality of their research and that of others.

Communication

Master's graduates can present and defend ideas and findings from their own research to fellow students, specialists and the public and can also take part in a critical debate on these. They are able to report the results of their own research in a satisfactory manner in articles written in either Dutch or English.

Learning skills

Master's graduates are intellectually equipped to work independently on a follow-up project, such as a PhD project, and to learn continuously. Their professional and academic attitude enables them to enter the labour market and work relatively independently in a movement science domain, in which they can further develop.

Appendix 4: Overview of the curricula

Bachelor's programme

	Bachelor 1	Bachelor 2	Bachelor 3	
Clusters	I Domain of Human Movement Sciences 100 ec			
General biomedical sciences	- Anatomy - General physiology - Movement pathology*	- Biomechanics - Exercise physiology - Movement analysis 1+2	- Special pathology*	
Biomedical neurosciences	- Neurophysiology - Neuroanatomy 1	- Neuroanatomy 2 - Neuromechanics 1		IV HMS Research 25 ec
Behavioral sciences	- Introduction psychology - Motor control	- Psych. of movement & exercise - Mot. devel & learning - Perception & action - Theoretical issues	- Neuro psychology	Bachelor Research Project 20 ec - Research - Written report* - Presentation*
	II Academic level of thought and practice 40 ec			
Methodological, statistical and research skills	- Introduction methodology & statistics* - Mathematics - Introduction in matlab - Statistics 1	- Qualitative research* - Statistics 2*	- Statistics 3 - Experimental research*	Programme design*
Professional Orientation	Introduction in HMS* extra-curricular activities (0 ec) >>>		Electives 15 ec	
	III Professional and personal development 20 ec			

Unless otherwise stated each course unit stands for 5 ec.

* Scientific writing and presenting

Master's programme

Master 1

I Domain of Human Movement Sciences	20 EC
Specialization Courses	10 EC
- Healthy Ageing	
- Sport	
- Rehabilitation	
Review article	10 EC

II Academic level of thought and practice	20 EC
Compulsory courses	10 EC
- Advanced statistics	
- Phil. Science & ethics	
Compulsory electives	10 EC
- Signal Acquisition / Modelling	
- Dynamical systems / Multilevel analysis	

Master 2

IV HMS Research	40 EC
Master research project	
- Research	25 EC
- Article	10 EC
- Poster + Forum	5 EC



Appendix 5: Quantitative data regarding the programmes

Bachelor's programme

Intake, drop-out and success rates

Table 1: Intake, drop-out and success rates for the bachelor's programme

COHORT	INTAKE	DROP-OUT AFTER 1 YEAR	BSC 3 YEARS (DROP-OUTS NOT INCL.)	BSC 4 YEARS	BSC 5 YEARS	BSC 6 YEARS
2005	129	34	40 (40%)	63 (66%)	72 (76%)	75
2006	129	45	23 (27%)	44 (52%)	57 (68%)	
2007	159	48	50 (45%)	80 (72%)		
2008	165	73	29 (32%)			
2009	155	44				
2010	167	70				

Table 2: Propedeutic success rates for the bachelor's programme

COHORT	INTAKE	PROPEDEUSE AFTER 1 YEAR	DROP-OUT DURING/ AFTER 1ST YEAR	PROPEDEUSE AFTER 2 YEARS	PROPEDEUSE AFTER 3 YEARS
2005	129	44 (34%)	34 (26%)	85 (66%)	91 (71%)
2006	129	23 (18%)	45 (35%)	71 (55%)	76 (59%)
2007	159	46 (29%)	48 (30%)	89 (56%)	105 (66%)
2008	165	39 (24%)	70 (44%)	93 (50%)	100 (53%)
2009	155	36 (23%)	44 (28%)	99 (64%)	
2010*	167	53 (32%)	70 (42%)		

*cohort 2010-2011 is subject to the BSA System, which means that students must earn 40 EC during their first year and must complete the propaedeutic phase within two years.

Study load

Table 3: Number of scheduled contact hours between lecturers and students, bachelor's programme

	YEAR 1	YEAR 2	YEAR 3
lectures	294	282	146
practical classes	136	76	46
individual supervision			16
Exams/ final presentations	41	48	66

Staff-student ratio

Due to a continuous increase in student numbers, the teacher-student ratio is still at the same level as in 2007 (1:44 overall, 1:53 for the Bachelor's programme, 1:26 for the Master's programme).

Table 4: Staff-student ratio for the bachelor's programme

YEAR	NUMBER OF ENROLLED STUDENTS		NUMBER OF FTE'S						
	TOTAL	BSC HBO OR OTHER BSC	SCIENTIFIC STAFF*	PHD-STUDENTS	VACANT	EDUCATION SERVICE**	STUDENT ASSISTANTS	TOTAL	STUDENT-TEACHER RATIO
2006	359	8	4,6	0.45	0.25	1.03		6.03	57,1
2007	354	9	4,8	0.55	0.75	0.6	1.0	7.45	45,8
2008	410	10	5,5	0.4	0.75	0.6	1.0	7.95	49,6
2009	439	15	5,9	0.4	0.25	0.625	1.0	7,875	53,5
2010	478	5	5,9	0.4	0.25	0.6	0.8	7.65	59,9
2011	414	5	6,0	0.7		0.6	0.8	7.75	51,2

* regular and temporary staff

** In the Bachelor's programme physiology course units are provided by the UMCG's Medical Physiology Department

Master's programme

Intake, drop-out and success rates

Table 5: Intake, drop-out and success rates for the master's programme

YEAR	INTAKE	WITH BSC HMS*	OTHER BSC/ MSC	WITH BSC HBO**	MSC 2 YEARS	MSC 2,5 YEARS	MSC 3 YEARS	MSC 3,5 YEARS	MSC 4 YEARS	MSC 5 YEARS	NOT GRADUATED YET	DROP-OUT
'05/'06	38	37	1	-**	15 (39%)	25 (66%)	30 (79%)	32 (84%)	34 (89%)	36 (95%)	-	2
'06/'07	51	44	2	6	21 (40%)	31 (60%)	38 (75%)	44 (86%)	46 (90%)	-	2	3
'07/'08	51	42	-	9	28 (55%)	34 (67%)	40 (78%)	44 (86%)	-	-	3	4
'08/'09 ***	53	48	-	5	17 (32%)	33 (62%)	39 (74%)	42 (79%)	-	-	8	3
'09/'10	46	34	3	9	10 (22%)	20 (43%)	-	-	-	-	25	1
'10/'11	77	69	-	8	-	-	-	-	-	-	-	-

* Students from the Bachelor's programme who were preliminary admitted with a maximum deficiency of 15 EC (respectively 18, 20, 15, 13, 9 and 19 students for the subsequent years) are included in this column.

** Until 2005-2006 BSc's from the universities of applied sciences followed a compact HMS Bachelor's degree programme. These students are included in the BSc HMS group. As of 2005-2006 BSc's from the universities of applied sciences follow a one-year 'HBO (higher professional education) transitional programme' without being awarded an HMS BSc degree, and are subsequently admitted to the HMS Master's degree programme.

*** Five students from cohort 2008-2009 postponed MSc graduation due to changes in the university admission fee system, which made it beneficial to start a second Master's degree programme before completing the first.

Staff-student ratio

Due to a continuous increase in student numbers, the teacher-student ratio is still at the same level as in 2007 (1:44 overall, 1:53 for the Bachelor's programme, 1:26 for the Master's programme).

Table 6: Staff-student ratio for the master's programme

YEAR	NUMBER OF ENROLLED STUDENTS	NUMBER OF FTE'S					
		SCIENTIFIC STAFF*	PHD-STUDENTS	VACANT	STUDENT ASSISTANTS	TOTAL	STUDENT-LECTURER RATIO
2006	113	4,0	0.45	0.25		5.00	23,8
2007	126	4,3	0.55	0.75	0.20	6.05	21,8
2008	136	4,9	0.4	0.75	0.20	6.55	21,8
2009	136	5,3	0.4	0.25	0.20	6.45	22,2
2010	167	5,3	0.4	0.25	0.40	6.65	26,4
2011	176	5,3	0.7		0.40	6.75	27,5

* regular and temporary staff

Personnel Human Movement Sciences

Table 7: Teaching staff HMS, September 2011

CATEGORY	MALE		FEMALE		TOTAL		PHD-GRADUATES %
	NUMBER	FTE	NUMBER	FTE	NUMBER	FTE	
Full professor	4	1.8			4	1.8	100
Associate Prof	3	1.4	1	0.3	4	1.7	100
Assistant Prof	7	3.0	9	3.1	16	6.1	100
Lecturers *	4	1.3	1	0.5	5	1.8	40
PhD students **	7	0,6	7	0,8	14	1.4	
Student assist.	-	-	-	-	-	1.2	-
Total	18	8.2	11	4.6	29	14	92,2

* 2 have a (partially) temporary appointment

** do not belong to regular staff

Appendix 6: Programme of the site visit

26 September 2012

16.30 17.15 Guided tour at Center for Human Movement Sciences

27 September 2012

08.30 09.30 First meeting with management
09.30 10.30 Students
10.30 11.15 Lecturers
11.15 11.30 Break
11.30 12.15 Examination committee and student advisor
12.15 13.00 Lunch
13.00 13.45 Educational Committee
13.45 14.15 Alumni
14.15 14.30 Preparation second meeting with management
14.30 15.15 Second meeting with management
15.15 15.30 Break
15.30 17.30 Internal meeting committee
17.30 17.45 Presentation of initial results
17.45 18.15 Reception

Delegations

First meeting with management

Formal UMCG management

Prof. Folkert Kuipers Dean; member of the Board of Directors UMCG
Prof. Jan Borleffs Vice-dean of Education UMCG
Drs Rob Hiemstra Director of Sector F UMCG - Development and Transfer
Ms. Anne-Marie Koop Student-advisor of the UMCG board

Delegated HMS management

Prof. Chris Visscher Head Center for HMS; coordinating professor specialization Sport
Dr Yvo Kamsma Curriculumcoordinator Bachelor's & Master's degree programmes
Prof. Tibor Hortobagyi Coordinating professor specialization Healthy Ageing
Prof. Luc van der Woude Coordinating professor specialization Rehabilitation

Students

Tim de Vrugt	Bachelor HMS; 1 st /2 nd year
Ms. Nienke Kerver	Bachelor HMS; 2 nd /3 rd year
Ms. Marjolein van Boven	Bachelor HMS + Honours College; graduated in August 2012
Douwe Jongeneel	Master 1 Sport Sciences (after pre-master's programme HMS)
Ms. Johanneke Hartog	Master HMS; 1 st /2 nd year; Rehabilitation
Moran Gilat	Master HMS; end of 2 nd year; Healthy Ageing

Lecturers

Dr Koen Lemmink	Bachelor: coordinator of the Bachelor Research Project Master: coordinating lecturer specialization Sport; lecturer profiling course Training Physiology
Ms. Dr Marina Schoemaker	Bachelor: lecturer B2 course Motor development & learning; coordinator cluster Behavioural scientific courses. Master: lecturer in the specialization Rehabilitation
Ms. Dr Marieke van Heuvelen	Bachelor: coordinator cluster Methodological, statistical and research skills. Master: lecturer specialization Healthy Ageing; lecturer compulsory course Advanced Statistics
Ms. Dr Floor Hettinga	Bachelor: lecturer B1 course Biomechanics Master: lecturer specialization Rehabilitation; lecturer profiling course Training Physiology
Dr GertJan Pepping	Bachelor: lecturer B1 course Introduction to Psychology; Lecturer B2 course Psychology of Movement and Exercise Master: lecturer specialization Sport
Ms. Dr Joanne Smith	Master: lecturer specialization Sport; lecturer compulsory elective course Modelling

Examination committee and study advisor

Prof. Bert Otten	Chair
Dr Rob Bakels	Lecturer Bachelor's and Master's degree programmes Member (Department of Medical Physiology UMCG) Lecturer Bachelor's degree programme
Ms. Dr Simone Caljouw	Member Lecturer Bachelor's and Master's degree programmes
Drs Riemer Vegter	Member Lecturer Bachelor's degree programme
Ms. Geesje Garming	Secretary Curriculum manager HMS
Drs. Bert Dollekamp	Advising member Senior Advisor Education HMS
Ms. Yvonne Tromp MSc	Study Advisor HMS Added on request of QANU

Educational Committee

Prof. Luc van der Woude	Chair Lecturer Bachelor's and Master's degree programmes
Ms. Dr Marije Elferink-Gemser	Member Lecturer Bachelor's and Master's degree programmes
Dr. Rob den Otter	Member Lecturer Bachelor's and Master's degree programmes
Raoul Bongers	Member Lecturer Bachelor's and Master's degree programmes
Ms. Jolande Alingh	Student Member Bachelor HMS; 2 nd /3 rd year
Michel Bekker	Student Member Master HMS; 1 st /2 nd year
Ms. Veerle de Rond	Student Member Bachelor HMS; end of 3 rd year
Ms. Marieke Deijs	Student Member Master HMS; end of 2 nd year

Alumni

Steven Doeven MSc	Graduated 31-12-2007 - specialization Rehabilitation Lecturer/researcher Higher Institute Sport Studies Hanze University of Applied Sciences, Groningen
Richard Dik MSc	Graduated 31-08-2008 - specialization Sport Embedded Scientist and performance manager National Handball Academy, Papendal - Arnhem
Ms. Danielle Jonker-Ezendam MSc	Graduated 31-08-2008 - specialization Rehabilitation Advisor Facilities - home care and assistive devices technology TriviumPlus BV, Zwolle
Willem Bossers MSc	Graduated 31-08-2009 - specialization Healthy Ageing PhD 'Healthy Ageing, Dementia and physical exercise' Center for HMS / UMCG - Groningen
Ms. Annemiek Bielderma MSc	Graduated 31-08 - 2011 - specialization Healthy Ageing PhD 'Lifestyle in older adults with a low socioeconomic status' Research and Innovation Group in Health Care and Nursing Hanze University of Applied Sciences, Groningen
Gijs Luesken MSc	Graduated 29-02-2012 - specialization Sport Account manager Medical Devices ProCare BV – Groningen

Second meeting with management

Formal UMCG management

Prof. Folkert Kuipers	Dean; member of the Board of Directors UMCG
Prof. Jan Borleffs	Vice-dean of Education UMCG
Drs Rob Hiemstra	Director of Sector F UMCG - Development and Transfer

Delegated HMS management

Prof. Chris Visscher	Head Center for HMS; coordinating professor specialization Sport
Dr Yvo Kamsma	Curriculumcoordinator Bachelor's & Master's degree programmes

Appendix 7: Theses and documents studied by the committee

- Critical reflection report;
- Subject-specific reference framework;
- Learning outcomes of the programmes;
- Overview of the curricula;
- Outline description of the curriculum components;
- Teaching and examination regulations;
- Allocated staff with names, positions, scope of appointment, level and expertise;
- Overview of the contacts maintained with the professional field;
- Reports on consultations with relevant committees/bodies;
- Test questions with corresponding assessment criteria and requirements (answer models) and a representative selection of actual tests administered (such as presentations, work placements, portfolio assessments) and assessments;
- List of the last 25 final projects or the final projects of the past two years (or portfolios/projects demonstrating the exit levels attained by the students);
- Reference books and other learning materials;
- Summary and analysis of recent evaluation results and relevant management information;
- Documentation regarding teacher and student satisfaction.

The committee studied 15 theses of the bachelor's programme in Human Movement Sciences and 15 theses of the master's programme in Human Movement Sciences. The theses were selected at random by the project leader and the chair of the committee.

Selection of theses of the bachelor's programme

1550780	1826697	1727095	1652095	1827375
1440780	1796208	1738402	1821547	1682024
1533800	1828061	1693425	1684000	1814591

Selection of theses of the master's programme

1452460	1531824	1463179	1460315	1614134
1541129	1465368	1531409	1565249	1466356
1498991	1486470	1564323	1565907	1750550

Appendix 8: Declarations of independence

Q357



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: Neil Fuller

HOME ADDRESS: 4 ELBERTH ROAD
SANDS BACH, CHESHIRE
CO11 3UR, UK

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT / SECRETARY:

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

Uv Amsterdam

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE;



HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS;

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, INSOFAR AS SUCH CONFIDENTIALITY CAN REASONABLY BE CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAO;

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF CONDUCT.

PLACE: DATE:

SIGNATURE: Neil Fuller

2

0357



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY
TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: Roijer Plas

HOME ADDRESS: Julianasing 427
3523 XG Utrecht
Netherlands

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT / SECRETARY:

Human Movement Sciences

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

Rijks Universiteit Groningen

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE;

1



HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS;

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, IN SO FAR AS SUCH CONFIDENTIALITY CAN REASONABLY BE CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAO.

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF CONDUCT.

PLACE: Amsterdam DATE: 25-03-2012

SIGNATURE:

2

6357



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY
TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: Paul Willema
HOME ADDRESS: P. De Laetstraat 4
2550 Koutdijk
Belgie

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT / SECRETARY:
Human Movement Sciences

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:
VU Amsterdam

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE

[Signature]



HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS;

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, INsofar AS SUCH CONFIDENTIALITY CAN REASONABLY BE CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAO;

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF CONDUCT.

PLACE: _____ DATE: _____

SIGNATURE: [Signature]

0357



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY
TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: R.G.J. Menkenbroek

HOME ADDRESS: Hinderstraat 74
6531 KK Nijmegen

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT / SECRETARY:

Bachelor's and Master's Degree Programmes
Human Movement Science

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

UU Amsterdam

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE;



CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE ABOVE INSTITUTION DURING THE PAST FIVE YEARS;

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL INFORMATION RECEIVED AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, IN SO FAR AS SUCH CONFIDENTIALITY CAN REASONABLY BE EXPECTED BY THE PROGRAMME, THE INSTITUTION OR NVAO;

CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF CONDUCT;

Nijmegen DATE: 5-9-2012

SIGNATURE: R. Menkenbroek

0357



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY
TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: Mary Rodgers

HOME ADDRESS: 2553 Broadcloth Way
Columbia, MO 21046
USA

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT / SECRETARY:

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

Uv Amsterdam

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE;



HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS.

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, INsofar AS SUCH CONFIDENTIALITY CAN REASONABLY BE CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAO.

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF CONDUCT.

PLACE: _____ DATE: 9/24/12

SIGNATURE: M. Rodgers



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY

TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: Peter G.A. Helwig

HOME ADDRESS: Vulcaansteat 34
7061 AZ Terboeg (NL)

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN ~~EXPERT~~ SECRETARY:

Human Movement Sciences

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

Rijksuniversiteit Groningen

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE;



HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS;

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, INSOFAR AS SUCH CONFIDENTIALITY CAN REASONABLY BE CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAO;

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF CONDUCT.

PLACE: Terboeg DATE: 21-09-2012

SIGNATURE: P.G. Helwig