

Master Human Movement Sciences  
Master Sport Sciences  
University of Groningen

*Report of the limited programme assessment  
January 24 and 25, 2019*

## Colophon

University of Groningen  
A. Deusinglaan 1  
9713 AV Groningen

Programme: Master Human Movement Sciences, specialisations:  
a) Motor Function and Cognition in Healthy Ageing,  
b) Rehabilitation and Functional Recovery

Master Sport Sciences

Location: Groningen

Mode of study: Full-time

Croho-registration: 60684, 60682

Assessment committee

Raoul van Aalst, chair

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The committee was presented to the NVAO for approval.

The assessment was conducted under the responsibility of

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## Summary

On January 24 and 25 2019 an AeQui committee performed an assessment of the master programme in Human Movement Sciences (HMS) and the master programme in Sport Sciences of the University of Groningen. The overall judgement of the committee is that the quality of both programmes is **satisfactory**. The programmes share the same competences, lecturers, support staff, facilities and board of examiners. In addition, the two master programmes are structured in the same way and partly share the same content. Therefore, the assessment of the two master programmes has resulted in one assessment report.

### Intended learning outcomes

The committee assesses the intended learning outcomes as **satisfactory** for both programmes. The committee concludes that the intended learning outcomes (or competences) of both programmes have been concretised with regard to content, level and orientation and meet international requirements. The competences apply to the bachelor programme as well as the master's programmes of the HMS department. The level at which these competences are developed is however different. The competences tie in with the domain-specific reference framework, drawn up by all the Dutch programmes in human movement sciences (and sport sciences). In addition, the committee notes that the Dublin descriptors are adequately represented in the competences. Both programmes offer students ample room for deepening their knowledge and skills within their field of interest. The committee expects that the new outline of the programmes, with a focus on scientific and societal HMS (or sport sciences) and accompanying roles, will provide students with a clearer understanding of their future in HMS (or sport sciences). Translating these roles into learning outcomes per course can add to this. The committee supports the intention to appoint an external advisory board.

### Teaching-learning environment

The assessment committee assesses the orientation of the programme as **satisfactory** for both programmes. The committee concludes that both programmes enable students to realise the competences. The structure of both programmes

offer students ample opportunities to follow their own interest within their chosen field. The structure of core elements and elective elements ensures that academic skills are addressed and in-depth knowledge of the chosen programme / specialisation is acquired. With the academic assignments, students can also focus on a more scientific or societal perspective. This is already in line with the new outline of the programmes. The staff involved is competent, engaged and enthusiastic. Lecturers meet on a regular basis to discuss the content of the programme. In addition, ample technical support and junior teachers (PhD students) are available. Students are actively involved in the programme; by means of the study association and as (advisory) members in different committees / boards. The committee concludes that the legal enrolment criteria are applicable to the programme. The committee agrees with the alumni's suggestion that the master programme in HMS can provide more insight into organisational and policy aspects of HMS and the application of knowledge in the professional field.

### Assessment

The assessment committee concludes that both programmes have an adequate system of assessment in place, and assesses this standard as **satisfactory** for both programmes. The committee concludes that both programmes have an adequate assessment system in place. The competences are at the basis of this system. Effective measures are taken to guarantee the validity, reliability and transparency of the assessments, by using an assessment plan for each course, ,

the more-eye-principle and random reviews of assessments and theses by the board of examiners. The level and quality of the different assessments studied by the committee during the site-visit was, for both programmes, adequate. The board of examiners is adequately organised and safeguards the quality of the assessments. The committee appreciates the involvement of an advisory student member in the board.

#### **Achieved learning outcomes**

The committee assesses this standard as **satisfactory** for both programmes. Based on the studied documents and the interviews, the committee concludes that graduates of the master programme HMS and the master programme Sport Sciences achieve the required level and the competences. The programmes have a solid and comprehensive graduation process in place. Students have ample opportunities to follow their own field of interest and go through all aspects of a research project.

The committee concludes that the overall quality of the studied theses is adequate.

All standards of the NVAO assessment framework are assessed positively; hence the committee awards a positive recommendation for the accreditation of the master programme in Human Movement Sciences and the master programme in Sport Sciences of University of Groningen. The committee concludes that the overall assessment of both programmes is **satisfactory**.

On behalf of the entire assessment committee,  
Utrecht, April 2019,

Raoul van Aalst  
Chair

#### **Recommendations**

The committee concludes that the competences are well structured in competence areas. The committee is of the opinion however that the translation of the competences into learning goals per course can be improved. It recommends to do so, with the new competences / roles in mind.

The committee recommends the programme to invest in internal and external calibration of theses with lecturers.

The committee noted that since the master graduation project is quite comprehensive, the research questions addressed (in both programmes) could be more complex. The committee suggests the two programmes to develop in this area. In addition, the committee suggests the programmes to provide students with a clearer format or guideline regarding the structure of the article in which the thesis is expected to be written.

Titia Buising  
Secretary

## Introduction

The master programme in Human Movement Sciences offers specialisation in and application of scientific knowledge and skills within the domains of Healthy Ageing and Rehabilitation. The master programme in Sport Sciences is focused on in-depth knowledge of the cognitive, psychological and physiological background of sport behaviour. Both programmes have a strong multidisciplinary character, with roots in scientific disciplines (such as anatomy and psychology) as well as practical disciplines (such as physical education and physiotherapy).

### The institute

Both master's programmes are offered by the Department of HMS. The department also offers the bachelor programme in Human Movement Sciences. The department HMS is part of the University Medical Centre Groningen (UMCG), which also offers bachelor and master programmes in medicine and dentistry.

The department's vision on teaching ties in with the vision and ambition of the faculty and the university. The department aims for a strong link between education and research and between lecturers and students. Students are expected to be active learners and commitment and responsibility are stimulated. The faculty's and university's primary focus is on healthy ageing. The university wants to contribute to innovative solutions for the societal challenges that have emerged due to an ageing population. This focus is also reflected in the HMS programmes. The HMS programmes cooperate closely with the rehabilitation and the orthopaedics departments within UMCG. Several assignments and graduation projects also take place in UMCG. In addition, within the UMCG a master-PhD track is available for talented master students (four PhD positions per year).

Within the department of HMS, the head is responsible for all three programmes and the research. The curriculum coordinator holds the daily responsibility and the curriculum manager is involved in the organisation and quality assurance of the HMS and Sport Sciences programmes. Next to supporting staff, a student

advisor and an internationalisations officer are part of the department. Academic and support staff have weekly lunch meetings to discuss relevant developments and enhance commitment.

The master programme in Sport Sciences started in 2012. Before, it was a specialisation in the master programme in Human Movement Sciences. This was made possible by the 'Restructuring Master's degree programmes' Act. At the time, the programme tied in with the increasing significance of scientific research within sports, the ambition to attract international students and the research activities concerning sports sciences.

### The programmes

Both of the two-year master's programmes are taught in English and comprise 120 EC. The first year is government funded and the second year is funded by the university.

### Human Movement Sciences

The master programme HMS offers two specialisations: a) motor function and cognition in healthy ageing and b) rehabilitation and functional recovery. The first specialisation addresses how physical activity can prevent chronic diseases, slow down ageing and preserve cognitive function, and how innovative solutions can promote mobility and independence in old age. The second specialisation focuses on the improvement of our understanding of impaired movement and the mechanisms involved in the restoration of mobility and functioning, as well as the

application of this understanding in rehabilitation practice.

#### Sport Sciences

The master programme in Sport Sciences covers four themes of interest: 1) physical activity, sport and cognition in children, 2) talent identification and development, 3) perception, decision-making and action in sport and 4) performance analysis and optimization in sport.

Both programmes consists of a core (75 EC) and an elective part (45 EC). The core of the programmes includes a specialisation element (rehabilitation, healthy ageing or sports sciences), compulsory course units (philosophy and advanced statistics), writing a review article about a topic of their own interest, the master Monitor and the master graduation project. The elective part of the programmes provides students with ample room to develop their own interests and study programme. This can consist of internal profile courses within the department, external profile courses or academic assignments.

#### Cluster visitation

Since the committee visited all human movement sciences programmes, it was able to see similarities and differences between these programmes. All universities involved have their own specific focus. Learning at Maastricht University is characterized by the problem-based learning concept. Human Movement Sciences at Maastricht University is offered at master level, with specialisations in Health & Rehabilitation, Sports & Nutrition and Physiotherapy. Particularly, the strong expertise in nutrition, exercise physiology and the Physiotherapy specialisation are quite unique.

At VU Amsterdam, human movement sciences is offered at bachelor's and master's level. There is a strong focus and staff expertise on biomechanics, modelling, movement analysis and sports. The university also offers the only research master in human movement sciences in the Netherlands.

University of Groningen also offers human movement sciences at bachelor and master level. The bachelor programme has a strong focus on neuroscience and statistics. The master programme Human Movement Sciences is a two-year programme. The programmes have close relations with the departments in rehabilitation and orthopaedics of UMCG.

Even though all three universities offer a programme or specialisation in sports, the focus is different. Maastricht University addresses sports and nutrition. The VU focuses on sport psychology, biophysics in sports and high-performance coaching. In relation to elite sport, the programme is connected to cyclic sports. The master programme in Sport Sciences in Groningen has a broad focus within this specific field, ranging from sport and cognition in children to performance analysis and optimisation in sport. Within top sport, the programme is focussing on (Olympic) team sports.

In general, the committee recommends all programmes to stay in touch with new technologies and developments, such as big data, machine learning and cutting-edge molecular analyses of human blood and tissue samples.

#### The assessment

University of Groningen assigned AeQui VBI to perform a quality assessment. In close cooperation with AeQui, and the other programmes part of this cluster, an independent and competent assessment committee was convened. A preparatory meeting with representatives from the programmes has taken place.

The quality assessment involved all universities (apart from Nijmegen) and programmes that are part of the Human Movement Sciences cluster in the Netherlands. The site visits were held between January 21<sup>st</sup> and 25<sup>th</sup>. The site visit at University of Groningen took place at January 24<sup>th</sup> and 25<sup>th</sup>, in accordance with the programme in attachment 2. The committee explicitly oriented itself on the cluster of which the programmes

are part. This took place during the preparatory meetings for each site visit and the last committee meeting in which the final assessment took place. For the assessment of the master programme Human Movement Sciences of Maastricht University and more specific the Physiotherapy specialisation, Bart Staal was part of the committee. The other committee members participated in all assessments part of this cluster.

The committee assessed all programmes in an independent manner. At the conclusion of the

assessment, the results were presented to representatives of the programme. The draft version of this report was sent to the programme representatives; their reactions have led to this final version of the report.

Initiated by the programme, a developmental meeting will take place in October 2019. The results of this meeting will not influence the assessment written down in this report.



## 1. Intended learning outcomes

The committee concludes that the intended learning outcomes (or competences) of both programmes have been concretised with regard to content, level and orientation and meet international requirements. The competences apply to the bachelor programme as well as the master's programmes of the HMS department. The level at which these competences are developed is however different. The competences tie in with the domain-specific reference framework, drawn up by all the Dutch programmes in human movement sciences (and sport sciences). In addition, the committee notes that the Dublin descriptors are adequately represented in the competences. Both programmes offer students ample room for deepening their knowledge and skills within their field of interest. The committee expects that the new outline of the programmes, with a focus on scientific and societal HMS (or sport sciences) and accompanying roles, will provide students with a clearer understanding of their future in HMS (or sport sciences). Translating these roles into learning outcomes per course can add to this. The committee supports the intention to appoint an external advisory board.

### *Findings*

The intended learning outcomes of both programmes are formulated in terms of competences. The programmes cover four competence areas: a) the domain of human movement sciences, b) academic level of thought and practice, c) professional and personal development and d) human movement sciences research. The latter competence area includes integration and application of the three basic areas, focusing on knowledge, skills and behaviour, respectively.

The areas of competences cover nine competences. These areas and competences are the same for all three HMS (and Sport Sciences) bachelor and master programmes at University of Groningen. The competences are however, developed at a different level. For the bachelor programme three levels are defined and for the master programmes two levels.

Within the master programmes, specialist knowledge and skills are the focal point. According to the programmes, these are the prerequisites for becoming an academic with unique qualities and expertise who can conduct independent research in the domain of human movement sciences. The competences qualify students for either an academic research-oriented career or a more societally-oriented

career in the fields of human movement or sport sciences.

In the master programmes, two levels are distinguished:

- a) Specialized knowledge and understanding of the domain, having mastered specific academic and professional competences that are suited to elaboration and deepening in a relevant research setting, along with the self-regulated development of a professional profile and;
- b) Capable of the independent and critical application and integration of the acquired competences in a systematic, well-organized, solution-driven research project, and of documenting, presenting and defending the results in accordance with scientific standards.

The first level includes the development of the first seven competences. At the second level, students apply their specialized knowledge and skills to comprehensive HMS or sport sciences research.

The use of competences ties in with the department's vision on learning and teaching. The competences reflect the multi- and disciplinary approach of HMS and sports sciences, the focus

on a fundamental level of academic thinking and skills and on domain specific knowledge and professional behaviour.

The competences tie in with the domain-specific framework of reference for HMS, which was drawn up by the universities involved in this quality assessment. All Dutch HMS programmes meet twice per year to discuss developments in the field of human movement sciences and sport sciences.

The competences are also based on the Dublin descriptors. The department of HMS uses the Dublin descriptors as a checklist for verifying the level of the competences.

#### *Master programme HMS*

The master programme in HMS is grounded in the overarching research themes of behaviour & cognition, perception & action, motor control & learning, and load & recovery. As mentioned before, the programme offers two specializations: a) Motor Function and Cognition in Healthy Ageing and b) Rehabilitation and Functional Recovery. These specialisations tie in with the department's research lines.

In the first specialisation students explore how physical activity and innovative movement-based interventions throughout the lifespan can enhance or preserve cognitive and motor function and prevent chronic diseases. Themes of interest include neural control of the mechanics of voluntary movement and skills in health and disease over a person's life span, the cognitive, physiological and biomechanical effects of exercise and physical activity of individuals who age healthily and of those who need assistive technology or therapy.

In the latter specialisation students gain an understanding of impaired movement and the restoration of functioning and the use of assistive technology in rehabilitation practices. Topics discussed are gait and balance, cyclic upper-body exercise, disability exercise and sport,

manual dexterity and upper extremity functioning, diagnostic tools and assistive technology.

#### *Master programme Sports Sciences*

Students of the master programme in Sports Sciences study sports performance and physical activity (on a recreational or an athlete level) from multiple perspectives, using theories about cognition, psychology and physiology. The programme covers four research areas:

- a) Physical activity and cognition in children.
- b) Talent identification and development.
- c) Perception, action and decision making in sports
- d) Performance analysis and optimization in (top)sports and how to prevent injuries.

The main focus is on research in ball team sports. Students are prepared for a career within the field of sport sciences and for a PhD position.

The programme collaborates with NOC\*NSF in coordinating scientific research supporting team sports. The HMS department is closely involved in the Sport Science Institute Groningen, a collaboration between the university, UMCG, Hanze University of Applied Sciences and local government to promote multidisciplinary cooperation in sports sciences. In addition, the Sport Innovation Centre, in which the department participates, aims to translate scientific knowledge, together with companies, into products and services.

Both programmes are characterised by a multidisciplinary approach. Students are expected to delve deeply into the themes of their chosen programme / specialization and develop their own interests, which they can expand through literature study, assignments and research. The specialized knowledge and skills students acquire enable them to conduct independent research that will contribute to the field of HMS or sport sciences. Students are prepared for a career within the field of HMS or sport sciences and for a PhD position

The department currently explores the possibilities of focusing the master programme in Sport Sciences more on elite sports and a multidimensional perspective on sport. The latter may lead to expansion of interfaculty collaboration on UG level, for instance with the department of Psychology, in order to include motivational and performance aspects.

In the near future, the department plans on installing an external advisory board for all its programmes. This board will help in identifying relevant societal and scientific developments and advise on the translation of those developments into the programmes.

The department of HMS presented an outline of the future positioning of the HMS programmes (to be accomplished in 2024). In this outline, the programmes have an explicit scientific as well as a societal focus. And the core competences have been translated in roles students are prepared for (expert, academic, investigator, communicator, team player and professional). With the introduction of roles, the programme wants to offer students a clearer perspective on their future opportunities in the field of HMS, both academic and professional. The department aims to create an academic workplace (or learning community), where students, lecturers and PhD students collaborate with the professional field in academic assignments and graduation projects. Students can create their own profile – developing on two axes, more scientific or more societal – and execute their elective courses, academic assignments and graduation projects accordingly.

#### *Considerations*

Based on the interviews and the examination of underlying documentation, the committee concludes that the intended competences of both programmes tie in with (inter)national require-

ments for (international) human movement sciences and the Dublin descriptors. The competences are the same for the bachelor programme and the two master's programmes; the level at which the competences are developed is however different.

Based on an overview of the relation between courses and competences (as provided in the assessment plan) and the course descriptions, the committee notes that both programmes cover all competences.

The committee concludes that the competences are well structured in competence areas. The committee is of the opinion however that the translation of the competences into learning goals per course can be improved. It recommends to do so, but with the new competences / roles in mind.

The committee appreciates the outline of the new positioning of the programmes, in which the focus is on scientific and societal HMS / sport sciences. The formulation of the competences in roles will provide students with a clearer understanding of their future in HMS. Translating these roles into learning outcomes per course, as mentioned above, can add to this.

The specialisations of the master programme in HMS reflect the department's research lines. The connection between research and education ensures the topicality of the courses.

The committee supports the intention to appoint an external advisory board. This will contribute to the connection of the programmes and intended learning outcomes to developments in the field of human movement sciences and sport sciences in practice.

Based on the above, the committee assesses this standard for both programmes as **satisfactory**.

## 2. Teaching-learning environment

The committee concludes that both programmes enable students to realise the competences. The structure of both programmes offer students ample opportunities to follow their own interest with their chosen field. The structure of core elements and elective elements ensures that academic skills are addressed and in-depth knowledge of the chosen programme / specialisation is acquired. With the academic assignments, students can also focus on a more scientific or societal perspective. This is already in line with the new outline of the programmes. The staff involved is competent, engaged and enthusiastic. Lecturers meet on a regular basis to discuss the content of the programme. In addition, ample technical support and junior teachers (PhD students) are available. Students are actively involved in the programme; by means of the study association and as (advisory) members in different committees / boards. The committee concludes that the legal enrolment criteria are applicable to the programme. The committee agrees with the alumni's suggestion that specifically the master programme in HMS can provide more insight into organisational and policy aspects of HMS and the application of knowledge in the professional field.

### *Findings*

#### **Programmes**

Both English taught programmes (120 EC) are offered as a full-time programme and have two intake moments. The programmes consist of a core (75 EC) and electives (45 EC). The courses are structured along the areas of competences mentioned in standard 1. For both programmes, the core components are the same.

#### *Core components*

The core of both programmes contain the compulsory courses, the specialization courses, the review article, the master monitor and the master graduation project (which is elaborated on in standard 4). The compulsory courses are the same for both specialisations. The other parts are dedicated to the chosen master's programme /specialisation.

The compulsory courses (5 EC each) include philosophy and statistics. The Philosophy course provides students with an understanding of the different perspectives in the philosophy of science, to allow them to reflect on ethical issues in HMS and SpS. The course on statistics gives insight into the necessary statistical techniques relevant to HMS. The site visit showed that students appreciate the Philosophy course in which also ethical issues, for example related to re-

search, are addressed. The committee also learned that due to differences in background and experiences, the statistical course can be quite challenging for international students.

In the Review Article course (10 EC) students are expected to gain an understanding and an overview of a chosen subject through literature research. This is demonstrated in a review article. Students choose a topic related to a current research theme within their programme or specialisation.

The Master Monitor (5 EC) encourages students to think about the human movement scientist (or sports scientist) they aim to become. Students reflect on their completed courses and their goals through a series of questionnaires. In addition, students attend lectures, symposia or other activities relevant to their field of study in order to enhance their professional perspective.

#### **Master's programme HMS**

In the specialisation of Motor Function, Cognition and Healthy Ageing students study how physical activity can prevent chronic diseases, slow down ageing and preserve cognitive function, and how innovative solutions can promote mobility and independence in old age.

The specialised courses regarding Rehabilitation and Functional Recovery focus on the improve-

ment of the understanding of impaired movement, and the mechanisms of restoration of mobility and functioning, as well as the application of this understanding in rehabilitation practice.

#### Master's programme Sports Sciences

In the specialised courses of the master programme in Sports Sciences students learn to understand:

- Physical activity and cognition in children.
- Talent identification and development.
- Perception, action and decision making in sports
- Performance analysis and optimization in (top)sports and how to prevent injuries.

#### *Elective components*

The electives of both programmes comprise internal profiling courses (with a maximum of 30 EC), external profiling courses (with a maximum of 20 EC) and academic assignments (with a maximum of 20 EC). Students can choose from a list of internal courses, including courses from the other master's programme / other specialisation. The external courses offer students the opportunity to follow courses of other degree programmes that match their personal interests. The academic assignments include an optional self-determined project, ranging from teaching experience, consultancy work, applied research experience, writing a scientific article or a focused extension of the research project (e.g. implementation of results). Students can execute their academic assignment within the department or in the professional field and also abroad.

For talented students with an ambition in research, the UMCG MD-PhD programme is available. This programme offers students a three-year track after the master programme. To enter, students have to write and present a PhD research proposal and have an article at least in revision in an international scientific journal

based on their bachelor or master graduation project.

During the site visit, the committee discussed the wide-scope of opportunities for students to compose their own programme in consultation with the lecturers. With this, the programme wants to stimulate students finding their field of interest with HMS or sport sciences. The academic assignments are especially helpful, as students can give these assignments a more scientific or societal focus. The students confirmed this.

Students and alumni are in general very satisfied with their programme, the committee learned during the site visit. Students and alumni also value the two-year duration of the programme, the time for their research project and the academic assignments. This gives them the opportunity to discover what kind of career they would like to pursue. Within the ample opportunities in both programmes, the Review Article course, the academic assignments and the graduation project, help students with creating coherence in their programme.

Students also noted that academic writing skills and communication skills are practiced quite often in both programmes. Alumni from the master programme in HMS expressed the need for more application of knowledge and insight into organisational and policy aspects of HMS.

#### **Educational concept**

The departments vision on learning and teaching is characterised by the following principles: a focus on multidisciplinary knowledge and academic skills; connection between teaching and research; lecturer's autonomy and ownership; guidance to a solid level of academic working and thinking; orientation and specialisation; integration of knowledge and skills; learning in a meaningful context; self-regulation; basis quality as a prerequisite for excellence and; ensuring basic quality in a straightforward and efficient manner.

Both programmes aim for small scale teaching methods. Teaching methods used include lectures, practicals, tutorials, discussion groups, mid-term presentations, individual assignments and external visits.

During the site-visit, the committee learned that students value the interactive teaching methods used and the small scale of the programmes. They especially appreciate the discussions during the lectures about the articles studied and the questions addressed in the lectures. Students also appreciate the balance between individual and group work in both programmes. Major projects are usually individual and coursework is often group work.

The committee also discussed the variety in background and experience of international students. This is especially relevant for the Statistics course. For this course web-based lectures are being developed, with the assistance of junior lecturers. Lecturers noted that the development of an English taught pre-master programme could also be helpful in this.

### **Staff**

The department of HMS consists of 26 scientific staff members. Lecturers are active in the bachelor programme as well as the master programmes. In general, staff members are expected to be involved in teaching (50%), research (40%) and other relevant activities (10%). In addition, thirty PhD students are involved in the department. PhD students are involved in the programmes as supervisors of graduation research and as junior teachers. Junior teachers receive the university's didactical training. All lecturers have a university teaching qualification.

During the site visit the committee learned that students and alumni in general were quite content with their lecturers. Lecturers are competent and approachable. Alumni also value the personal connection with their lecturers, which of-

ten remained in the long-term during their professional career.

During the site visit, lecturers remarked that weekly team meetings are organised. In addition, lecturers meet within smaller group to discuss the content of and coherence in the more specialised courses. Lecturers of the master programme Sport Sciences teach all specialised courses together.

### **Facilities**

The department of HMS offers different laboratories, software and equipment for students and staff. This is maintained and supported by the technical support group. The technical support group also provides instructions for the more complex lab facilities and develops equipment and software if necessary. Nestor is used as a digital learning platform.

Students are guided throughout the programme by their lecturers. The study advisor is also available. The students the committee met with, feel well guided by their lecturers. Both programmes offer ample room for their own choices and they feel supported in this by their lecturers.

During the site visit, the committee met with representatives from the education programme committee. It became clear that in recent years the committee's focus has shifted from discussing all course evaluations to discussing and advising the curriculum coordinator on specific themes. This includes for example the procedure for the academic assignments. The representatives of the committee also value the contact with the curriculum coordinator. The student representatives in the education programme committee, the advisory student member of the board of examiners and a representative from the study association meet on a monthly basis to discuss current issues and avoid overlap. This year, a pilot has started with the study association evaluating the courses with students (after each period) in order to increase the response of the course evaluations.

### *Considerations*

The committee concludes that for both programmes, the teaching-learning environment and the staff involved enable students to achieve the intended competences. The programmes are similar in structure, offered by the same department and consist partially of the same content. The committee notes that students of both programmes have many opportunities in composing their own individual programme and pursuing their own interests. Students and lecturers value this, the committee learned during the site visit.

The adequate structure of core elements and elective elements ensures that academic skills are addressed and in-depth knowledge of the chosen programme / specialisation is acquired. With the academic assignments, students can also focus on a more scientific or societal perspective. This already ties in with the before mentioned new outline of the programmes. The committee also notes that the Review Article course adequately prepares students for the master graduation project. The committee agrees with the alumni's suggestion that the master programme in HMS can provide more insight into organisational and policy aspects of HMS and the application of knowledge in the professional field.

The committee learned during the site visit that even though students value the Master Monitor, it is not on top of their agenda. In addition, because of language issues it can be hard for international students to complete the required hours for professional orientation as part of the Master Monitor (which usually includes attending activities that are in Dutch). This language problem can also occur in teaching situations involving Dutch patients. The programmes intend to find a reasonable solution for this.

Based on the studied documents, the committee concludes that relevant and up-to-date literature and articles are used in both programmes. The UMCG MD-PhD programme offers opportunities for students with ambitions in research.

The committee supports the start of a new course on big data (for both programmes). This ties in with relevant developments in the field of HMS and sports sciences.

The committee notes that the legal enrolment criteria are applicable to both programmes. The committee supports the development of web-based lectures for the Statistics course, as this might help international students with less background in statistics.

During the site visit, the committee met with very competent and enthusiastic staff members. The staff is very engaged with students and the programme. The committee also concludes that the department is quite coherent and that lecturers meet on a regular basis to discuss the content of the programmes / specialisation. In addition, ample technical support for students and lecturers is available.

The department has a well-functioning system in place with junior lecturers. The committee expects that this will have a positive effect on the workload of the lecturers.

During the site visit, the committee noted that the study association is very active in organising events, both social and educational. Students and lecturers value this. The education programme committee is also active and involved. In addition, the committee would like to express its appreciation for the active involvement of students in different committees and boards within the faculty.

Based on the above, the committee assesses this standard for both programmes as **satisfactory**.

### 3. Assessment

The committee concludes that both programmes have an adequate assessment system in place. The competences are at the basis of this system. Effective measures are taken to guarantee the validity, reliability and transparency of the assessments, by using an assessment plan for each course, the more-eye-principle and random reviews of assessments and theses by the board of examiners. The level of the different assessments studied by the committee during the site-visit was, for both programmes, adequate. The board of examiners is adequately organised and safeguards the quality of the assessments. The committee appreciates the involvement of an advisory student member in the board. The committee recommends the board of examiners to invest in internal and external calibration of theses with lecturers.

#### *Findings*

The programmes tie in with the faculties and universities assessment policy. Based on these policy's an assessment plan (including an assessment programme) is drawn up for both master's programmes. The assessment plan is based on four principles: a) to assess whether the intended learning outcomes have been achieved, b) providing feedback to students and supporting and guiding self-directed learning, c) to enable substantial autonomy and ownership of lecturers in their approach and d) ensuring basic quality in a straightforward and efficient manner.

Predetermined answer models are used for the grading of assessments. The appointed course examiner is responsible for the construction of the assessment and the answer model. In constructing assessments, the four-eye principle is used.

Assessment methods vary from written exams, written assignments, practical assignments, oral presentations, poster presentations and oral assessments to peer review and assessment.

With the different assessment methods, different academic skills are assessed. These include the interpretation and use of theories and research findings, analytical skills, critical thinking and discussion and an academic level of reporting.

Students are informed about the assessments in the course descriptions and during the courses.

The HMS academic writing manual provides students (and lecturers) with guidelines for writing and the grading of written assignments. The students the committee met during the site visit are in general content with the level of the assessments.

#### **Board of examiners**

The board of examiners is responsible for ensuring compliance with the competences of the bachelor and master's programmes HMS and Sport Sciences at the required level. The board supervises the execution of the assessment, draws up guidelines, appoints examiners, monitors and sets exam results and deals with fraud and appeals. The board monitors the programmes assessment plans and randomly checks whether assessments meet the established criteria. The board consists of lecturers, two external members and an advisory student member. Board members participate in the universities training and feedback meetings.

Currently, the board checks on the quality of the assessments. In the near future, the intention is that this will be organised and processed more centrally from the Bureau for Medical Education of the UMCG, leaving room for the board to focus on content analysis. In addition, the programmes assessment plans will be included as formal standard in the PDCA cycle of the UMCG as of academic year 2019-2020.



The board re-assesses a random sample of theses each year. This is done to check whether the theses have been graded correctly and whether the subjective differences in assessment are acceptable.

Recently, a new assessment form has been implemented for the master graduation project.

The meeting with the board of examiners during the site visit learned the board meets on a monthly basis to discuss developments, the results of the checks on assessments and theses and requests from students, etcetera. The advisory student member provides the board with advice on assessments from a student perspective.

#### *Considerations*

The committee concludes that, for both programmes, an adequate system of assessment is in place. The quality assurance of the assessment system is solid and effective measures are taken to guarantee the validity, reliability and transparency of the assessments. The assessment plans, more-eye principle, the checks by board of examiners all add to this. Students are content with the level of and variation in assessments. In general, the level of the different assessments (of both programmes) studied by the committee during the site-visit was adequate.

The board of examiners is adequately organised and safeguards the quality of the assessments. The committee appreciates the involvement of an advisory student member in the board. Calibration currently takes place between the first and second examiner of a theses and the committee advises to broaden this. The committee therefore recommends the board to invest in internal and external calibration of theses with lecturers.

Based on the above, the committee assesses this standard for both programmes as **satisfactory**.

## 4. Achieved learning outcomes

Based on the studied documents and the interviews, the committee concludes that graduates of the master programme HMS and the master programme Sport Sciences achieve the required level and the competences. The programmes have a solid and comprehensive graduation process in place. Students have ample opportunities to follow their own field of interest and go through all aspects of a research project.

The committee concludes that the overall quality of the studied theses is adequate. The committee noted however that since the master graduation project is quite comprehensive, the research questions addressed (in both programmes) could be more complex. In addition, the committee suggests the programmes to provide students with a clearer format or guideline regarding the structure of the article in which the thesis is expected to be written.

### *Findings*

Both programmes are finalised with the master graduation project (40 EC). This includes the research (25 EC), an article (10 EC) and a poster presentation and oral presentation at a forum (5 EC). The master graduation project is an individual project, in which students complete all stages of a comprehensive research project in which all intended learning outcomes are addressed. Students are expected to derive a research question from literature or practice, translate this question into testable hypotheses, investigate these hypotheses with a test design or an experiment, analyse the data gathered, discuss the results and write up, present and defend the entire study in accordance with scientific standards.

Students can derive their research topics from the Review Article course or the academic assignments. The majority of research projects are part of ongoing research in the so-called academic workplace.

The research report has to be written in the form of an original scientific article. The article should approach the level of a paper that might be submitted for publication in a scientific journal. Students present and defend their research with a poster and an oral presentation. The student's supervisor is involved in all stages of the

graduation project. The scientific article poster and oral presentation are also assessed by a second examiner. The poster presentation is graded by three staff members who attend the poster presentation. Both supervisor and second examiner use an assessment form. PhD students can also be involved as assistant supervisors. If students conduct their research externally, the external supervisor is asked for advice on the assessment of the research.

Students confirmed during the site visit that the graduation project is usually part of an ongoing research project, where students often work under the supervision of a PhD student. Within this construction, students do experience freedom and autonomy in their research.

The programme keeps in touch with the alumni through LinkedIn, alumni days that are organised twice per year, the alumni committee that is part of the study organisation and the biannual alumni survey. The data collected through LinkedIn and the alumni survey shows that 33% of alumni work in academia (research, data management or teaching), 24% are undertaking a PhD (the majority at UMCG, followed by other Dutch universities and abroad) and 44% holds a position at a health-related institution. Over 50% of alumni

work in the northern provinces and 10% work abroad.

The alumni the committee met, value the problem solving and academic skills they learned in the programmes.

#### *Considerations*

The committee concludes that the both programmes have an effective graduation procedure in place. The master graduation project is very comprehensive and gives students ample opportunities to go through all aspects of a research project.

The committee reviewed fifteen theses of both programmes. The committee concludes that the overall quality of the studied theses is adequate and graduates of the master programme in HMS and the master programme in Sport Sciences achieve the required level. The studied theses show an adequate use of methodology and research. Not all studied theses

however match the format of an article. The committee also notes that the relevance of the topics addressed can be increased. In addition, the committee is of the opinion that, related to the size of the master graduation project, the research questions could be more challenging, either at the conceptual or the methodological level. The committee learned during the site visit that students can define their own research topic and question which might contribute to this phenomenon. The committee therefore suggests more explicit lecturer supervision of students in the choice of the research topic, to include provision of the students with a clear description of the format or structure of the article in which the thesis is expected to be written.

Based on the above, the committee assesses this standard for both programmes as **satisfactory**.



## Appendices

## Appendix 1 Assessment committee

Naam panellid (incl. tituluur)	Korte functiebeschrijving van de panelleden (1-3 zinnen)
prof. dr. Gertjan Ettema	Gertjan Ettema is sinds 1998 professor aan de NTNU, Department of Neuromedicine and Movement Science, Faculty of Medicine and Health Sciences, NTNU, Trondheim. Zijn onderzoeksgebieden zijn biomechanica en (neuro)fysiologie in motor behaviour (in het bijzonder sport) en computer modelling van biomechanica en spierfunctie in coördinatie. Hij doceert en is curriculumontwikkelaar op het gebied van biomechanica, motor control en coördinatie op alle niveaus. Hij is sinds 2014 wetenschappelijk manager van Centre for Elite Sports Research en sinds 2013 section editor van Human Movement Science (sinds 2010 editorial board member). Daarnaast is hij lid van de International Society of Biomechanics (ISB) en de European College of Sport Science (ECSS). In de jaren 2000 was hij professor II aan Norges Idretts Høgskole Oslo; in de jaren '90 docent aan de University of Queensland, Australië en de VU Amsterdam. In Australië heeft hij een cursus voor Problem-based-learning facilitator in the Medical Curriculum gevolgd.
prof. dr. Anton Wagenmakers	Anton Wagenmakers is sinds 2012 professor of Exercise Metabolism and Lead of Exercise Metabolism & Adaptation Research Group aan Liverpool John Moores University. Anton is voorzitter van de werkgroep curriculumontwikkeling BSc Sport and Exercise Science en moduleider en examiner in de MSc Sport and Exercise Physiology. Daarvoor was hij 10 jaar lang als Professor of Exercise Biochemistry verbonden aan University of Birmingham, sinds 2008 als & Head of School of Sport & Exercise Sciences. In Nederland had hij van 2003-2007 een parttime leerstoel in Metabolic Control Systems, Faculty of Biomedical Engineering aan de TU/e en was hij tot 2003 verbonden aan de UM. Bij UM was hij tutor en examiner van bachelortheses en lid van voortgangstoets Beoordelingscommissie. Van 1999-2003 was hij lid van de Examencommissie BMT aan de TU/e.
prof. dr. Nicole C. Wenderoth	Nicole Wenderoth is sinds 2012 full professor Neural Control of Movement en directeur van het Institute for Human Movement Science and Sport, Department of Health Sciences and Technology, ETH Zürich, Zwitserland. Hier geeft zij leiding aan een multidisciplinaire onderzoeksgroep. Zij is lid van de ETH Onderzoekscommissie, lid van de Stuurgroep Neuroscience Centre Zürich, wetenschappelijk bestuurslid van zowel de Hochschulmedizin Zürich als van de European College of Sport Sciences. Zij treedt regelmatig op als reviewer van internationale fondsen en van journals op het gebied van Neuroscience, Neuroimaging en Motor Control. Tot 2012 was zij verbonden aan KU Leuven als assistant professor. Zij is promotor van tot nu toe 20 afgeronde promotietrajecten en heeft meerdere wetenschappelijke prijzen in ontvangst mogen nemen, zoals in 2013

	de Golden Owl for excellent teaching; in 2006 een professorship with specific research assignment (competitive position awarded for 10 years).
Vera L. Broek, student-lid	Vera Broek studeert Biomedische Wetenschappen aan LUMC en Klassieke Muziek aan Codarts University of the Arts. Zij is student-assistent bij microscooppractica in het LUMC en studentvertegenwoordiger in de minor Cellular Therapies in Biomedical Sciences. Zij treedt op als student-lid van visitatiepanels voor TNO's en was in 2016-2017 panellid ZonMw (Lyme Disease).
drs. Raoul R. van Aalst	Raoul van Aalst is bedrijfskundige van achtergrond. Na afronding daarvan is hij werkzaam geweest in zowel controllersfuncties als adviesfuncties. Sinds 2005 vervult hij de functie van controller bij Tennet. Sinds 2016 is hij programmamanager Always Energy, een gezondheids- en vitaliteitsprogramma dat erop gericht is om een gezonde levensstijl bij medewerkers te bevorderen. Hij is sinds 2004 frequent betrokken bij uitvoeren van visitaties in het hoger onderwijs, zowel in de rol van extern deskundige als in de rol van voorzitter. In oktober 2018 verwacht hij de module "Assessment in Higher Education" bij de Erasmus Universiteit Rotterdam (Risbo) af te ronden.

The panel was supported by Titia Busing, secretary. All panel-members signed a declaration of independence and confidentiality, which were submitted to NVAO.

## Appendix 2 Programme site visit

### Thursday 24 January – detailed programme and delegations

<b>08.30-09.00</b>	<b>Arrival at the UMCG, Antonius Deusinglaan 1</b>
<b>09.00-09.45</b>	<b>Welcome and first meeting with management</b>
<b>09.45-11.15</b>	<b>Show Case</b>
<b>11.15-11.45</b>	<b>Break</b>
<b>11.45-12.45</b>	<b>Board of Examiners</b>
<b>12.45-13.30</b>	<b>Lunch</b>
<b>13.30-14.30</b>	<b>Master students HMS and SpS</b>
<b>14.30-15.30</b>	<b>Lecturers Master's programmes HMS an SpS</b>
<b>15.30-15.45</b>	<b>Break</b>
<b>15.45-16.45</b>	<b>Programme Committee</b>
<b>16.45-17.30</b>	<b>Alumni</b>

### Friday 25 January – detailed programme and delegations

**Bachelor students HMS**

**Lecturers Bachelor's programme HMS**

**Break**

**Management Plus - Challenges and Dilemmas**

**Lunch and internal meeting AeQui Panel**

**Presentation of initial results - Boeringzaal**

**Reception and end of Site-visit**



## Appendix 3 Intended learning outcomes

### Global objectives and profile Human Movement Sciences

The aim of the Master's degree programme in Human Movement Sciences (HMS) is for the student to:

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

These general programme objectives are related to the following profile for the Groningen University Master in Human Movement Sciences:

*The University Master in Human Movement Sciences 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 theory. This is combined with specialist mastery of a self-determined research theme within one of specializations Motor function, Cognition in Healthy Ageing or 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 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.*

### Learning outcomes of the programme

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

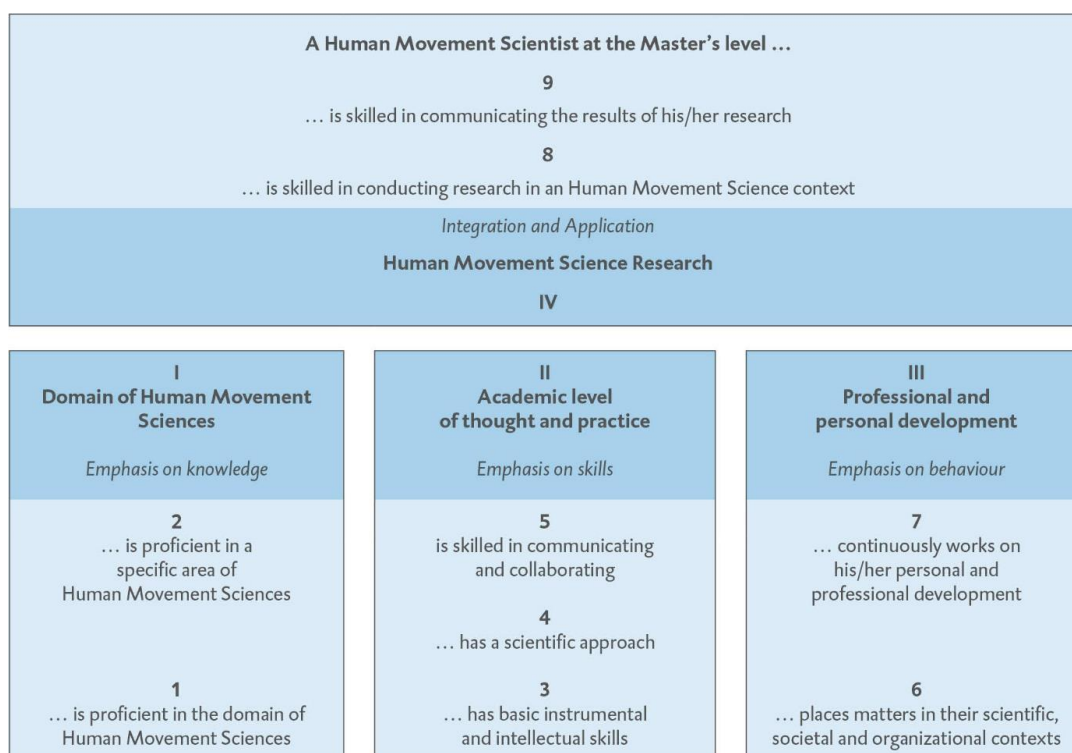
- I. The domain of human movement sciences
- II. Academic level of thought and practice
- III. Professional and personal development
- IV. Human movement sciences research

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

A Master of Science graduate 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. continuously works on his/her 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/her research (IV).

## Structure of the learning outcomes



## Global objectives and profile Sport Sciences

The aim of the Master's degree programme in Sport Sciences (SpS) is for the student to:

- a. acquire specialist subject knowledge, skills related to and understanding of the field of sport sciences;
- b. prepare to practice his/her profession as an academically trained sport scientist;
- c. prepare for a career as a researcher in the field of sport.

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

*The University Master in Sport Sciences is a self-aware, independent and critical academic, yet a team player, with a broad vision on sport sciences and a comprehensive knowledge of fundamental interdisciplinary theory. This is combined with specialist mastery of a self-determined research theme within the area of interest Sport, Learning and Performance. University Masters in Sport Sciences 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 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. The University Master in Sport Sciences is competitive with regard to societal or scientifically-oriented careers on the basis of their scientific training and individual specialization.*

## Learning outcomes of the programme

There are nine core competences, divided into four areas of competence:

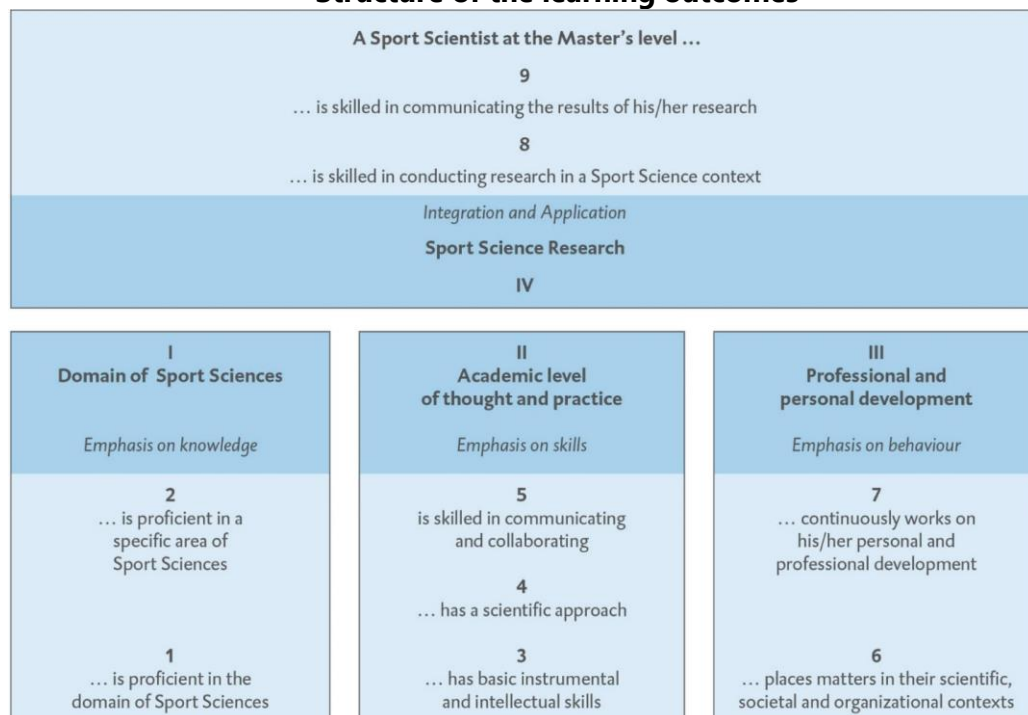
- I. The domain of sport sciences
- II. Academic level of thought and practice
- III. Professional and personal development
- IV. Sport Sciences research

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

A Bachelor of Science in sport sciences:

1. is proficient in the domain of sport sciences (I)
2. is proficient in a specific area of sport 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. continuously works on his/her personal and professional development (III)
8. is skilled in conducting research in a sport science context (IV)
9. is skilled in communicating the results of his/her research (IV).

### Structure of the learning outcomes



Structure of the learning outcomes of the Master's degree programme in SpS

## Appendix 4 Overview of the programmes

First year Human Movement Sciences and Sport Sciences (60 EC)							
Block 1		Block 2		Block 3		Block 4	
• Start Master Monitor* →							
Specialization HMS 1 • Rehabilitation and functional recovery • Motor function and cognition in healthy ageing	5EC 5EC	Specialization HMS 2 • Rehabilitation and functional recovery • Motor function and cognition in healthy ageing	5EC 5EC	Review article <i>Human Movement Sciences</i>	5EC	Review article <i>related subjects</i>	5EC
Specialization SpS 1 • Sport, learning and performance	5EC	Specialization SpS 2 • Sport, learning and performance	5EC	<i>Sport Sciences</i>		<i>related subjects</i>	
Profile course unit 1+2 Choose two from: • Neuromechanics • Perception and action • Course unit from another specialization (also MSc Sport Sciences)**	5EC 5EC 5EC	Compulsory: Advanced statistics	5EC	Profile course unit 4+5 Choose one from: • Clinical lessons • Talent identification • External MSc course unit	5EC 5EC 5EC	Compulsory: Philosophy of science and ethics	5EC
• External MSc course unit • Introduction to teaching+mentor system*** • Academic Assignment	5EC 5EC 5-20 EC	Profile course unit 3 Choose one from: • Motor control • Phys. of training& exercise • External MSc course unit • Academic Assignment	5EC 5EC 5EC 5-20 EC	• Introduction to dynamical systems • (E-learning modules multilevel analysis) • Academic Assignment	5EC 5EC 5-20 EC	Profile course unit 6 • Modelling • Big data in SpS and HMS • Signal acquisition and Analysis • Academic Assignment	5EC 5EC 5EC 5-20 EC

\* The Master Monitor runs throughout the programme

\*\* Students can only choose a course unit from another specialization during the first block

\*\*\* Introduction to teaching/mentor system (5 EC) runs through all four blocks of the first year

Second year Human Movement Sciences and Sport Sciences (60 EC)			
Block 1	Block 2	Block 3	Block 4
Graduation project 40 EC: • Research 25 EC • Article 10 EC • Poster + Forum 5 EC			
Human Movement Sciences related or Sport Science Related subjects • Academic assignments and/or • Internal course units and/or • External course units			
→ End Master Monitor			

## Appendix 5 Studied documents

1. Self-evaluation report on the Bachelor's and Master's degree programmes in Human Movement Sciences and Sport Sciences 2019
2. Teaching and Examination Regulations + Rules and Regulations Master's degree programmes
3. Annual reports:
  - Programme Committee
  - Board of Examiners
  - Assessment plans MSc HMS and sport sciences
4. Study guides Master's Human Movement Sciences and Sport Sciences
5. MSc HMS and SpS graduation project assessment documents
  - 15 graduation projects for each of the programmes
  - Graduation articles and assessment forms
  - Internship assessment forms
  - Poster and forum assessment forms
6. Student surveys:
  - Nationale Studenten Enquête 2018 (NSE)
  - Elsevier Beste Studies 2018
  - Keuzegids Hoger Onderwijs 2018
7. List of contacts with the professional field
8. Documents UMCG:
  - UMCG-Quality Assurance Protocol
  - UMCG-Annual Monitor Education
9. Overview lab equipment for students
10. University of Groningen:
  - UG -Strategic plan 2015-2020
  - UG -Assessment policy
  - UG -Manual for Boards of Examiners
  - UG- Quality assurance protocol
11. Teaching and examination regulations + Rules and Regulations Bachelor and Master programmes.

