



Nutrition and Health  
Wageningen University and Research

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[info@academion.nl](mailto:info@academion.nl)

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## Summary

Standard 1. Intended learning outcomes

Standard 2. Teaching-learning environment

Standard 3. Student assessment

Standard 4. Achieved learning outcomes

### Score table

The panel assesses the programmes as follows:

BSc Voeding en Gezondheid

Standard 1: Intended learning outcomes

meets the standard

Standard 2: Teaching-learning environment

meets the standard

Standard 3: Student assessment

meets the standard

Standard 4: Achieved learning outcomes

meets the standard

General conclusion

positive

MSc Nutrition and Health

Standard 1: Intended learning outcomes

meets the standard

Standard 2: Teaching-learning environment

meets the standard

Standard 3: Student assessment

meets the standard

Standard 4: Achieved learning outcomes

meets the standard

General conclusion

positive

Prof. dr. Hans van Leeuwen (chair)

Jessica van Rossum MSc (secretary)

Date: 2 October 2023

# Introduction

## Procedure

### Assessment

On 7 and 8 June 2023, the bachelor's programme Voeding en Gezondheid and the master's programme Nutrition and Health of Wageningen University (WU) were assessed by an independent peer review panel as part of the cluster assessment Biomedical Sciences. The assessment cluster consisted of 18 programmes, offered by Wageningen University, Vrije Universiteit Amsterdam, University of Amsterdam, Leiden University, Radboud University, Maastricht University and Utrecht University. The assessment followed the procedure and standards of the NVAO Assessment Framework for the Higher Education Accreditation System of the Netherlands (September 2018).

Quality assurance agency Academion coordinated the assessment upon request of the cluster Biomedical Sciences. Peter Hilderling and Jessica van Rossum acted as coordinator and Annemarie Venemans, Hester Minnema and Jessica van Rossum acted as secretaries in the cluster assessment. They have been certified and registered by the NVAO.

### Preparation

Academion composed the peer review panel in cooperation with the institutions and taking into account the expertise and independence of the members as well as consistency within the cluster. On 8 June 2023, the NVAO approved the composition of the panel. The coordinator instructed the panel chair on his role in the site visit according to the Panel chair profile (NVAO 2016) on 16 January 2023.

The programmes composed a site visit schedule in consultation with the coordinator (see appendix 3). The programmes selected representative partners for the various interviews. They also determined that the development dialogue would take place after the site visit. A separate development report will be made based on this dialogue.

The programmes provided the secretary with a list of graduates and their thesis topics and grades over the period September 2020 – October 2022. In consultation with the secretary, the panel chair selected 15 theses per programme. He took the diversity of final grades and examiners into account, as well as the various specializations in the Master programme (full time variant). Prior to the site visit, the programmes provided the panel with the theses and the accompanying assessment forms. They also provided the panel with the self-evaluation report(s) and additional materials (see appendix 4).

The panel members studied the information and sent their findings to the secretary. The secretary collected the panel's questions and remarks in a document and shared this with the panel members. In a preliminary meeting, the panel discussed the initial findings on the self-evaluation reports and the theses, as well as the division of tasks during the site visit. The panel was also informed on the assessment frameworks, the working method and the planning of the site visits and reports.

### Site visit Wageningen University

During the site visit, the panel interviewed various programme representatives (see appendix 3). The panel also offered students and staff members an opportunity for confidential discussion during a consultation hour. No consultation was requested. The panel used the final part of the site visit to discuss its findings in an internal meeting. Afterwards, the panel chair publicly presented the preliminary findings.

## Report

The secretary wrote a draft report based on the panel's findings and submitted it to an Academion colleague for peer assessment. Subsequently, the secretary sent the report to the panel for feedback. After processing this feedback, the secretary sent the draft report to the programmes in order to have it checked for factual irregularities. The secretary discussed the ensuing comments with the panel chair and changes were implemented accordingly. The panel then finalised the report, and the coordinator sent it to Wageningen University and Research.

## Panel

The following panel members were involved in the cluster assessment:

- Prof. dr. Hans van Leeuwen (chair) – Former vice chair Executive Board and dean of faculty Health Care and Health Care Sciences, professor in calcium- and bone metabolism, Erasmus MC
- Dr. Annik van Keer – Policy staff member education, University Utrecht
- Dr. Mieke Latijnhouwers - Assessment Expert, Wageningen University & Research
- Prof. dr. Frans Ramaekers - CSO and QA Manager at Nordic-MUbio, emeritus professor Molecular Cell Biology, Maastricht University Medical Centre
- Prof. dr. Jan Eggermont – Chair Education Council, KU Leuven, and member of the Council of Higher Education, Vlaamse Onderwijsraad (VLOR), member Board of directors, AZ Herentals (regional hospital in Flanders)
- Dr. Geert Ramakers – Associate professor Translational Neuroscience, Brain Center UMC Utrecht
- Dr. Leo Schouten – Associate professor Epidemiology, Faculty Health, Medicine and Life Sciences, Maastricht University
- Prof. Marjukka Kolehmainen - Professor Nutrition (Food and Health) at the Institute of Public Health and Clinical Nutrition, University of Eastern Finland
- Liliane Bouma-Ploumen MSc – Advisor and process coordinator in education
- Dr. Maud Huynen – Assistant professor at Maastricht Sustainability Institute, Maastricht University
- Ir. Margot Kok – Director Education Policy, Faculty Bètasciences Universiteit Utrecht
- Prof. dr. Dennis Claessen - Professor Moleculaire Microbiologie, Leiden University
- Emma van Wijk BSc (student member) - Masterstudent Biomedical Sciences, Radboud Universiteit
- Daphne Louws BSc (student member) - Masterstudent Nutrition and Health, Wageningen University
- Prof. dr. Mieke Verstuyf (referent) – Professor Clinical and Experimental Endocrinology, KU Leuven
- Dr. Jur Koksma (referent) – Assistent professor Transformative Learning, Radboudumc
- Prof. Em. dr. Ton Bisseling (referent) - Emeritus professor Molecular Biology, Wageningen University and Research

The panel assessing the bachelor and master programmes Nutrition and Health at Wageningen University consisted of the following members:

- Prof. dr. Hans van Leeuwen (chair)
- Prof. dr. Frans Ramaekers
- Ir. Margot Kok
- Dr. Leo Schouten
- Prof. Marjukka Kolehmainen
- Emma van Wijk BSc (student member)

## Information on the programmes

|  |  |
|--|--|
| Name of the institution:                           | Wageningen University  |
| Status of the institution:                         | Publicly funded institution  |
| Result institutional quality assurance assessment: | Positive   |
| Programme name:                                    | Voeding en Gezondheid (Nutrition and Health)   |
| CROHO number:                                      | 56868  |
| Level:   | Bachelor   |
| Orientation:                                       | Academic   |
| Number of credits:                                 | 180 EC   |
| Specializations or tracks:                         | -  |
| Location:  | Wageningen   |
| Educational minor:                                 | -  |
| Mode(s) of study:                                  | Fulltime   |
| Language of instruction:                           | Dutch/English  |
| Submission date NVAO:                              | 1 May 2024   |
| Programme name:                                    | Nutrition and Health   |
| CROHO number:                                      | 66868  |
| Level:   | Master   |
| Orientation:                                       | Academic   |
| Number of credits:                                 | 120 EC   |
| Specializations or tracks:                         | Nutritional and Public Health Epidemiology<br>Nutritional Physiology and Health Status<br>Molecular Nutrition and Toxicology<br>Sensory Science<br>Systems Approach for Sustainable and Healthy Diets<br>Food Digestion and Health<br>Nutritional Epidemiology and Public Health<br>(distance-learning parttime variant) |
| Location:  | Wageningen   |
| Educational minor:                                 | -  |
| Mode(s) of study:                                  | Fulltime, parttime   |
| Language of instruction:                           | English  |
| Submission date NVAO:                              | 1 May 2024   |

## Description of the assessment

### Organisation

Wageningen University (WU) consists of one faculty of Agricultural and Environmental Sciences. There are five science groups: Agrotechnology & Food Sciences, Animal Sciences, Environmental Sciences, Plant Sciences and Social Sciences. Within these science groups one or more university departments and research institutes within the same research field are combined. Each university department contains between eleven and twenty chair groups, each managed by a professor, the so-called chair holder. The chair holder manages the members of the chair groups and distributes research and education activities among them in collaboration with other chair holders of other chair groups. Wageningen University has 18 bachelor's and 28 master's programmes. Expertise within the university is often shared. For example, not every programme has their own teaching group in statistics, but one chair group Mathematical and Statistical Methods organises all statistical courses.

### Standard 1. Intended learning outcomes

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

### Findings

#### *Profile*

The *bachelor's programme Nutrition and Health* at Wageningen University is a BSc with a strong research orientation that aims to provide students with an in-depth scientific basis on how nutrition influences health, can prevent illness and can be used to improve global health and well-being. A biomedical research-oriented approach is used to investigate the relationship between dietary intake and health outcomes, while also paying attention to social determinants of behaviour. Different perspectives and disciplines related to (bio)chemistry, cell biology, virology, microbiology, human physiology, pharmacology, and nutrition are offered in a translational manner, preparing students to work on multidisciplinary biomedical issues and to develop T-shaped competences. T-shaped competences encompass the depth of related skills and expertise in a single field, next to the ability to collaborate across disciplines with experts in other areas and to apply knowledge in areas of expertise other than one's own. Next to biochemistry and physiology, the programme also involves epidemiological research tools. Students learn to use nutrition research to set up or improve public health policies and nutritional guidelines. The programme offers students a foundation in knowledge about biological processes on molecular, cellular, organ and organism level (in both healthy and diseased state) and prepares students for an academic master's programme in Nutrition and Health at Wageningen University and related disciplines such as Food Safety, Food Quality Design and Data Science for Food and Health.

The *master's programme Nutrition and Health* trains students at a MSc level to design research approaches to deal with complex nutritional and health-related problems and challenges. The programme covers the full domain of nutritional sciences, with connections to food science. The MSc programme Nutrition and Health prepares students to become academic experts within their specialization, to get acquainted with related specializations, and to work on their professional development in a multidisciplinary setting. The programme aims to prepare its graduates for a career in organizations with a focus on nutrition and/or health science, such as research institutes, companies, government and non-governmental organizations. To this end, the programme aims for them to become T-shaped professionals with in-depth expertise on a specific niche as well as a broader overlook to the wider field of nutrition and health, allowing them to build bridges between experts from a range of different disciplines in order to tackle complex nutritional and health-related problems.



The MSc programme has an on-campus fulltime variant and a distance-learning parttime variant: Nutritional Epidemiology and Public Health. This variant is designed for part time study to combine work and study in the context of lifelong learning. Students participating in the distance-learning parttime variant mainly consists of working professionals. The intended learning outcomes are the same for both the on-campus fulltime variant and the distance-learning parttime variant, and both programmes reflect the T-shaped competences that students need to become professionals who can accurately contribute to the working field.

According to the panel, both programmes have a unique profile with a strong research orientation on nutrition and health. The bachelor's programme is an academic programme with a strong research orientation on biological mechanisms underlying health and disease. The panel appreciates the solid foundation in knowledge that students achieve about biological processes at the molecular, cellular, organ and organism levels in both healthy and diseased state. Students learn to use nutrition research to set up and improve public health policies and nutritional guidelines and therefore the panel notices that the programme has a strong connection to society. The master's programme equips students with a biomedical, research-oriented approach to studying the relation between dietary intake and the promotion of health, while also paying attention to relevant aspects of social, behavioural, environmental and food science that influence this relation. The panel notices that the programme covers the full domain of nutritional sciences with connections to food science and sees this as beneficial for students, who continue their way into the working field as well-equipped professionals in the field of nutrition and health. Both programmes aim to train students to work on multidisciplinary biomedical issues and to develop T-shaped competences. According to the panel, this aligns well with the fact that complex nutritional challenges, such as the sustainable development goals to relieve famine and provide good health and well-being for all human beings, require multidisciplinary approaches and T-shaped professionals. The panel appreciates the clear profile of the programmes and appreciates the useful contribution that students can make to the professional field thanks to their multidisciplinary training in dealing with nutritional and health-related challenges.

#### *Intended learning outcomes*

Each programme has translated its aims into a set of intended learning outcomes (ILOs) which describe the knowledge, skills and attitudes that students are to obtain by the end of the programme. A detailed description of the intended learning outcomes can be found in Appendix 1.

The panel studied the intended learning outcomes and concludes that they match the profile of each programme and reflect an academic level. The panel saw in the overviews that the programmes put together that the intended learning outcomes reflect the Dublin descriptors and are in line with the domain specific reference framework for the biomedical sciences. The panel notices that the bachelor learning objectives are clearly distinctive from the master's level. The intended learning objectives of the bachelor programme are concentrated more on basic skills, while the master's intended learning outcomes are of more advanced level, go more into depth and also include communication and soft skills.

#### *Considerations*

The panel concludes that the programmes have a unique profile with a strong research orientation on nutrition and health. The bachelor's programme is academic with a strong research orientation on biological mechanisms underlying health and disease. The master's programme equips students with a biomedical, research-oriented approach to study the relation between dietary intake and the promotion of health, while also paying attention to relevant aspects of social, behavioural, environmental and food science that influence this relation. The panel appreciates this clear profile and sees the useful contribution that students can make to the professional field.

The panel studied the intended learning outcomes and concludes that they are of an academic level, reflect the Dublin descriptors and are in line with the domain specific reference framework for the biomedical sciences. The panel notices that the bachelor learning objectives are clearly distinctive from the master's level.

### Conclusion

The panel concludes that the programmes meet standard 1.

### Standard 2. Teaching-learning environment

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

### Findings

#### *Curriculum and teaching methods*

The *bachelor's programme* consists of a three-year curriculum (180 EC) that covers the full breadth of the domain of nutrition and health and provides a basis in biology, chemistry, statistics, and research methodology. Basic and advanced knowledge and understanding of various aspects of nutrition and health are taught over the course of the programme. The first two years of the curriculum consist of only compulsory courses (121 EC). In the third year of the curriculum, students choose 44 EC of elective courses. After that, they finish the bachelor's programme by writing a BSc thesis (12 EC). See appendix 2 for a curriculum overview.

The non-elective courses are clustered within three learning trajectories Human Biology, Nutrition and Research Competence. In the Research Competence trajectory, students write a BSc thesis on their topic of interest. Each of the learning trajectories contains courses that build upon each other and teach students basic and advanced knowledge, as well as understanding of various aspects of research in the field of nutrition and health. Next to these learning trajectories, students follow courses that are part of skills development and their personal learning trajectory. The programme offers Skills Development training (3 EC) with the use of the Skills Portfolio, in which students reflect annually on their performance and set learning goals on their personal presentation, writing and collaboration skills. The goal of this course is to train the communication skills of students and guide them in their personal development with feedback from experts, tutors and peers.

The *master's programme* consists of a two-year curriculum of 120 EC. The programme contains a career preparatory part (common part of at least 39 EC), and a specialization part. The common part focuses on career preparation and skill development. It includes the course Professional Perspectives on Nutrition as well as an academic master's cluster of courses. In the Master's cluster students fulfil an assignment, such as executing a consultancy project, working in a student team on real-life health challenges or writing a research proposal. Students have the following options when choosing such a cluster: Consultancy Training, Data Science Master Cluster or Research Master Cluster. The last part of the common part is an academic internship (24 EC). The academic internship can either be a research internship, a professional internship or a research practice. During the academic internship, acquired knowledge and skills are brought into practice while gaining relevant work experience at an academic level in a potential future work field, such as a company, public institution, research organization, or non-governmental organization. Usually, students choose an internship in line with their specialization, but exceptions are possible when students have sufficient background knowledge in another related field. In general, an internship is performed outside Wageningen University. Instead of an academic or professional internship, students can also opt to do an additional research project within Wageningen University. This is called a Research Practice. This project has additional learning outcomes related to career preparation and personal development.

In the specialization part, students choose between six specializations:

- Nutritional and Public Health Epidemiology
- Nutritional Physiology and Health Status
- Molecular Nutrition and Toxicology
- Sensory Science
- Systems Approach for Sustainable and Healthy Diets
- Food Digestion and Health

All specializations contain a cluster of compulsory courses that target specific learning outcomes linked to the specialization, courses that prepare students for a thesis linked to their specialization and within their area of interest, and courses that act as multidisciplinary bridges and broaden the perspective of students (30-42 EC). As part of the specialization students execute an individual research project, the master's thesis (36 EC).

Next to the on-campus fulltime variant with six specializations described above, the programme offers a *distance-learning parttime variant*: Nutritional Epidemiology and Public Health. Students can complete this programme in three or four years, depending on whether they participate parttime during the whole programme or participate in parttime courses and do their thesis and internship fulltime. In contrast to the on-campus programme, the curriculum of the distance-learning programme consists solely of compulsory courses due to logistical and budgetary reasons. All courses of the distance-learning Master's programme are offered parttime in periods of four weeks. In this way, 60 EC of courses is spread over two years and prepares students for the thesis (36 EC) and academic internship (24 EC). Basic and advanced analytical and descriptive epidemiological methods are taught within the courses, as well as the translation of epidemiological findings to public health policies. In the second year, all students are asked to visit Wageningen for one week in which they a.o. work in real life on a group project Grant Writing and participate in a group debate.

The panel studied the curricula and concludes that both the bachelor's and the master's programme offer a solid foundation in science as well as the desired breadth outlined in the profiles (see standard 1). The programmes have a clear structure and build up in level and depth. The panel noticed that in the *bachelor's programme*, the combination of learning trajectories and skills courses with elective courses allows students to follow a personal learning path which helps them to develop T-shaped competences, providing them with a solid basis and the option to build up expertise across disciplines. The panel learned from interviews with students and teachers that they really appreciate this. According to the panel, the same applies to the *master's programme*, where students get the chance to explore more broad competences as part of the common part and more in-depth competences as part of the specialization part.

The panel appreciates the variety of teaching methods, including the opportunities for students to practise with lab-based and computer-based practicals. Bachelor students mentioned that they would prefer more lab-based practicals in the bachelor curriculum. The programme added that they plan to include this in the bachelor thesis phase. In bachelor and master courses a mixture of teaching methods is used, consisting of lectures, tutorials, lab-based and computer-based practicals, knowledge clips, group work and individual papers. The panel learned from interviews with teachers that online teaching methods are specific and adjusted well to the purpose of the courses. The panel was also pleased to hear from students that the distance-learning master's programme is well-organised online and that students highly appreciate the content of the programme, the committed teachers and their efficient and timely communication and responses. Students felt well prepared for doing their thesis and internship and felt that the curriculum gave them a good basis to add value to the working field.

During the site visit, the panel spoke with various programme representatives about the Skills Portfolio in the BSc. Some students indicated that they sometimes struggle with seeing the connection between the Skills Portfolio and the other curriculum elements, and feel that they are sometimes required to learn soft skills without context. Alumni also noted that they mainly learned research skills, and that soft skills got less attention. Labour market research, that was done by the national institute for biology in 2020-2021, revealed that the work field requests more soft skills from graduates. In order to prepare students for this, the BSc programme is currently integrating training in collaboration, presenting and writing skills more into the curriculum. The panel appreciates this development and recommends investigating whether the skills portfolio can be integrated more into the curriculum and become part of the courses in such a way that hard and soft skills are offered in a relevant and for students clarifying context. Such a context could for instance be provided with the help of alumni and guest lecturers presenting their experiences with a particular skill and its use in the working field.

From the interviews with students and alumni the panel learned that the programmes can benefit more from the input of alumni and connection to the working field than they do now. Alumni and other working field representatives can inform students about possibilities after graduation. Currently, it is not always clear to students what they can become other than a researcher. In particular students of the bachelor programme mentioned that to them this could be made more explicit. In the master programme students do have more of an impression of the working field and the broader possibilities than only the academic research field, depending on the specialization they choose. According to the panel, alumni can help during the whole of the curriculum to give insight into what student's perspectives are and the panel heard from alumni that they are willing to do this. The programmes do organise information events with alumni, but the main focus is on research jobs. Alumni and the working field could shed more light on the broad possibilities of scientific work and other types of jobs, including entrepreneurship. The panel also advises the programmes to think of different ways to involve alumni and the working field in the programme, for example via a newsletter, academic consultancy training of students, or team training under supervision of an entrepreneur.

The panel noticed from the documents and interviews with students that bachelor students sometimes choose to follow master courses on nutrition, in addition to the attention paid to this theme throughout the programme. This means that the teachers of the master course have to accommodate bachelor's students following courses on master's level, which creates extra work pressure. The panel suggests investigating whether more nutrition-themed elective courses can be added to the elective offering of the bachelor's programme, in order to avoid students enrolling in master's courses that then have to be adapted to their level ad hoc.

#### *Language of the programme*

In the bachelor programme the language of instruction of the courses is Dutch, except for lectures given by non-Dutch lecturers. The provided literature is most often in English, since most biomedical and nutrition research is published in English-language journals. In the third year, students can write the bachelor thesis in Dutch or in English. In practice, most of the students write their thesis in English. First year students reflect on their English language proficiency and set goals for their development based on an English proficiency test that the programme offers in collaboration with Wageningen Into Languages.

The language of instruction in the master's programme is English. According to the programme management, English is the dominant language in academia and for a large part also in the professional field of nutrition and health. The job market is highly international. This means that the English language is essential for participation in the international professional environment where graduates of the programmes can be expected to work. All lecturers are asked to test and, if necessary, improve their level of English language proficiency. During

recruitment and selection of new lecturers, explicit attention is paid to their language proficiency. Furthermore, Wageningen University has low-cost facilities available for students who want to improve their proficiency in English and Dutch.

The panel discussed the choice of English with programme representatives and found this to be well motivated. English is the dominant language in the academic field of nutrition and health, and graduates should be able to operate in an international academic and professional context. In the eyes of the panel sufficient attention is paid to the language skills of the student and teaching staff.

### *Feasibility*

On average, the study duration of bachelor's students is almost 40 months from the start until graduation. The average time to graduate from the master's programme is 31 months. This is comparable to other programmes in the field. The average study duration for the parttime variant is 41 months and matches the predetermined study duration of three or four years.

During the site visit, the panel spoke with programme representatives about the feasibility of the curriculum. From the interviews with the programme management, teachers and students, the panel learned that the feasibility of the programmes is well arranged for. The programmes offer a curriculum that can be finished in time and if students want to graduate in time, this is possible. There is good and extensive guidance, and a lot is organized to help students make their choices throughout the curriculum (see below). In addition, there is guidance for students on what their strengths and weaknesses are. The panel learnt that study delay is mostly related to personal choices made by students to pursue extracurricular activities, or to follow more than the required number of electives because of personal interest in the topics. Students who want to gain additional labbased experience, need to follow extra courses for this. The programmes allow students to develop themselves and it is not a policy to push students to finish in time if they have other preferences. The panel understands and appreciates this as long as it does not cause high workload of teachers and concludes that the curricula of both programmes are feasible. Next to that, the panel advises to keep a close eye on study delay and reasons of study delay.

### *Support*

Personal guidance is provided during the programmes, both pro-actively and upon request. Guidance is offered by mentors and study advisers. Mentors are peer students from a higher year, who are trained by study advisers. They give students the necessary information about studying at Wageningen University and organize meetings to evaluate how students have experienced the first months. In case of any unforeseen problems, students are directly referred to a study adviser. The programme team of Nutrition and Health has six study advisers (4fte).

After the first half year of the *BSc programme* all students are invited for a 10-minute check-up meeting with a study adviser. This meeting serves to evaluate the wellbeing of students, check if the study fits to the expectation of the student, and to inform them about the support that is offered by the university for all study related issues. Pro-active action is taken with students with a study progress of less than 50% and BSc students who are facing a (provisional) negative binding study advice. The study advisers also organize information sessions about what to expect in the curriculum, study skills training and master's and career options. Students receive guidance from study advisers in the design of the third year in the course Personal Motivation Assessment.

Before the start of the *MSc programme*, students design a personal learning path in consultation with the study adviser. Previous education is taken into account. Pro-active action is taken with students with study progress of less than 50%. Besides one-on-one meetings, the study advisers also organize information sessions about how

to arrange and find a thesis or internship, procedures, and feedback sessions on application letters for internships.

With regard to the *MSc distance-learning variant*, two of the study advisors monitor the progress and well-being of the students. The study advisors have one-on-one meetings with students prior to the start of the academic year to inform them about the workload of the programme to prevent dropout for that reason. In the onboarding week study advisors introduce the students to the programme, procedures, and learning environment. Attention is also paid to group building, which is important in this group to connect to the programme and to fellow students. Furthermore, the study advisors check progress and well-being of the students at least twice a year.

The panel is impressed with the system of student support in the programmes, particularly the commitment of the study advisors, the proactive guidance they give students and their engagement with students, especially through personal motivational guidance. This is a great asset of the programmes. The study advisors are involved with the students and work hard to proactively guide them. Students appreciate this very much and some would appreciate a proactively organized follow up meeting by the study advisors in continuation of the one-on-one meetings. Such an organized follow-up would facilitate students that might now feel a threshold to ask for support.

#### *Teaching staff*

The teaching staff of the bachelor's programme consists of 82 teachers. The master's programme has a team of 90 teachers, consisting of full professors, scientific staff in tenure tracks and other academic staff members. 63% of the teachers involved in the bachelor programme is in the possession of a University Teaching Quality (UTQ) or is in the process to get qualified; for the master's programme, this is 75%. 89% of the teaching staff has obtained a PhD.

The panel spoke to teachers and appreciated their enthusiasm and commitment. Even though the teaching staff is part of a large faculty, teachers know their students. Moreover, the panel saw that teaching staff is willing to make an effort to provide high quality education. Obtaining a UTQ is required for all new teaching staff members, and the overall percentage of teachers with an UTQ is on an acceptable level. Nevertheless, the panel thinks that ultimately all teaching staff members should obtain a UTQ, and challenges the programmes to keep working on increasing these percentages. The panel also learned that the workload of the teaching staff is high. The cause of this is multifactorial: teachers are involved in many different programmes as well as research projects and are continuously innovating courses and education, and the many possibilities for students to choose their study paths asks a lot of flexibility of teaching staff, which may add to the workload of teachers. The panel learnt that there are several ongoing discussions within the university on workload of the staff. It stresses that careful monitoring of this workload in order to be able to prevent effects on the programmes, and supports measures to address this in consultation with the teaching staff.

#### Considerations

The *bachelor's programme* consists of a three-year curriculum that covers the full breadth of the domain of nutrition and health. The *master's programme* is a two year programme in which students learn the appropriate research tools and essential knowledge for their specialization to investigate the association between nutrition and health outcomes. The panel studied the curricula and concludes that both the bachelor's and master's programme consist of strong and well-structured programmes offering a solid foundation in science. It appreciates the varied and activating teaching methods that are used in the programmes. The panel suggests integrating the skills portfolio more into courses and pay more attention to offering soft skills in the curriculum within a relevant context and making explicit the significance of soft skills for being successful in their eventual

working field. The panel advises to add more nutrition-related electives to the bachelor curriculum, in order to avoid students opting for master's courses on the theme that than have to be accommodated for bachelor's students following courses on master's level. The panel noticed that the curricula are feasible and was pleased to learn that the students are given plenty of opportunities to develop themselves. According to the panel, the programmes can involve alumni and the working field more in the programmes, so students can benefit from their knowledge and learn more about the possibilities after graduation. The panel was impressed by the committed and enthusiastic study advisers and teaching staff, as well as the extensive guidance that students receive. Staff quality and quantity are up to standard, although staff workload is a point of attention, which the panel advises to address on a higher level in the Wageningen University than the programme level to find solutions.

### Conclusion

The panel concludes that the programmes meet standard 2.

### Standard 3. Student assessment

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

### Findings

#### *Assessment of courses*

Assessment within the programmes is based on the Wageningen assessment policy. This policy describes the vision on assessment of the university, its organization and quality assurance mechanisms. The way of examination within each individual course is described in the course catalogue, and the detailed assessment strategy is provided in the course guide. Assessment methods vary between courses. The courses in both the BSc and MSc offer diverse and multiple assessment moments during the course, consisting of written exams with closed multiple-choice questions, a mixture of open and closed questions, or only open questions, individual or group written assignments, individual or group oral presentations linked to practical work, group work or case studies. All courses organize review or feedback sessions or organize the review on request after the interim examination to allow students to get insight into their successes and mistakes. Most of the courses of the distance-learning master's programme use at least two assessment methods to grade the performance of the students. The tests of courses within the distance-learning programme are always scheduled on the last Thursday of the period of four weeks. Students make their test with remote proctoring software. They are allowed to log in between 8.30 and 22.00 CET and have a course-specific time window to complete the test.

The panel studied the system of student assessment and notices that the programmes use an appropriate variety of assessment methods. From students, the panel learned that the assessment is what students expected of it and that they know which information is tested with which assessment. A recommendation of the previous re-accreditation panel was to reduce the number of multiple choice assessments and assure that multiple choice examination is done purposely. The panel learned from the documents that the programme worked to improve this through training sessions for teachers with an assessment expert to align assessment methods with the course objectives. In a number of courses, multiple choice is now combined with other types of examination such as open or closed questions other than multiple choice. The panel appreciates that the recommendations of the previous panel were taken to heart. The panel also learnt that this move away from multiple choice questions is very much work in progress, and was hindered in its execution by the COVID-19 pandemic. Students mentioned in the interviews that they would still prefer more open questions in their written exams during the bachelor programme, in addition to the current knowledge-based multiple-choice questions. The programme aims to further increase the role of open questions in BSc assessment in the coming years. The panel encourages the programme to continue on this path and supports further measures to limit the



role of multiple-choice examination. In the master's programme assessment consists of a variation in assessing methods, using open questions, multiple choice questions and a combination of both.

From the interviews with the programme management and examination board the panel learned that a new assessment policy is being implemented. The panel studied the assessment policy and is impressed by this complete assessment policy with a clear vision on the integrated responsibility of assessment. The panel advises the programme management and examination board to pay attention to how to put the policy from paper into practice, while keeping workload and feasibility for teaching staff in mind. The programmes could consider arranging support for implementation among the teaching staff to achieve this.

#### *Thesis assessment*

Students write their *bachelor thesis* with a supervisor that is part of one of eleven chair groups. On top of this, and only after approval of the examining board, students can also be supervised by other chair groups, but only if the topic is related to their bachelor's programme. The assessment of the thesis is conducted by at least one academic staff member and usually two. All examiners, regardless of chair group, use the same, standardized assessment form and rubrics. Fourteen rubrics are used that cover the areas of research competence, report, presentation and final discussion. Alongside these rubrics the examiner grades the research competencies of the student (counts for 30%), the written report (counts for 60%) and the final discussion (counts for 5%). The oral presentation (counts for 5%) is graded by a member of the programme team (either programme director or study adviser). The final grade is entered by the programme team after an originality check of the thesis.

The *master's thesis* is the result of an individual project in which students conduct research under the supervision of a researcher of one of the chair groups connected to the specialization. Two months after starting with the thesis, students have a progress evaluation with their supervisor. If the supervisor considers the student to make insufficient progress, the supervisor, in consultation with the examiner, may decide to terminate the project. The quality of the thesis project is assessed based on rubrics regarding performance (counts for 40%), research report (counts for 50%), oral presentation (counts for 5%), and oral defence (counts for 5%). The final assessment of the thesis is always independently conducted by at least two academic staff members. The final grade is set by the examiner.

The panel studied the bachelor and master thesis assessment procedure and concludes that they have clear criteria and make use of rubrics with sub-comments. After studying a selection of theses, the panel concluded that it graded the same way as the examiners did. The panel learned from the programme management that assessment of the bachelor thesis is usually conducted by two assessors, but it is not obligatory. The panel recommends the programme to ensure that there is always an independent second reviewer involved in bachelor thesis assessment. After talking to students, the panel learned that students know well what their grades are based upon and that their results match the expectations they had beforehand. The panel found the bachelor thesis assessment based on clear rubrics and learned from the programme management that the percentage for which each rubric counts is fixed and defined on forehand. The panel suggests the programme to look into the bachelor thesis assessment form and if possible mention the fixed percentages per rubric there also. In the form is now mentioned that the research competencies of the student count for 30-40%, the written report counts for 50-60%, the final discussion counts for 5% and the oral presentation counts for 5%. The programme replied that the form is used for the entire university and within that range every programme has defined its own weighting. The panel appreciated this explanation.

The panel noted that the study advisors of the programme also have a role in thesis assessment as examiners of the oral presentations. The panel thinks that this can potentially lead to a conflict of interests when study advisors must independently assess a student whom they also coached through difficult personal



circumstances. Although the panel did not see indications of this happening in practice, it recommends reconsidering this mixing of roles to prevent any potential misunderstanding or disputes from happening in the future.

#### *Examination board*

The bachelor's programme Voeding en Gezondheid and the master's programme Nutrition and Health fall under the Examining Board Technology and Nutrition, which is one of the four Examining Boards of Wageningen University. The Examining Board monitors, reports and advises on the quality of individual study programmes, examination and exams. The Examining Board monitors the quality of the theses and thesis assessment by periodically looking into a sample of theses. The responsibilities of the Examining Board are described in the Rules and Regulations of the Examining Board and are in line with the framework of the Education and Examination Regulations Wageningen University.

The panel spoke to members of the Examining Board and notices that the board functions well, although it has quite some workload and is catching up on work. The last two years the Examining Board had a change of secretary twice and during COVID-19 a lot of cases had to be investigated to detect whether fraud had been committed, which led to increased workload. The panel underlines that it is important that the Examining Board is able to catch up on their work, and recommends providing the Board with sufficient facilities to be able to do so.

#### Considerations

The panel is pleased with the assessment practices and policies it encountered in the BSc and MSc, and found that the programmes use a variety of appropriate assessment methods. The assessment matches student's expectations and students know which information is tested with which assessment. The panel appreciates the reduction of multiple choice assessment upon advice of the previous panel. The panel noticed from the self-evaluation report that improvements were made in several courses, but it is still an on-going process. The panel advises to investigate whether this development can be continued even further. The panel applauds the new assessment policy and advises the programme management and examination board to pay attention to putting it into practice, keeping the feasibility for teaching staff in mind while doing this. The panel studied the bachelor and master thesis assessment procedure and concludes that it has clear criteria and rubrics with subcriteria. The panel recommends the programme to ensure that there is always an independent second reviewer involved in bachelor thesis assessment. The panel suggests the programme to look into the bachelor thesis assessment form and if possible mention the fixed percentages per rubric there instead of or next to the university broad determined percentages. Next to that, the panel recommends reconsidering the double role of study advisors by excluding them from any involvement in examination. The Examining Board fulfills its tasks well, although it has a quite high workload. The panel advises to investigate measures to decrease workload of the Examining Board and provide the board with sufficient facilities to be able to catch up on their work.

#### Conclusion

The panel concludes that the programmes meet standard 3.

#### Standard 4. Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.

#### Findings

Prior to the site visit, the panel studied 15 theses per programme. The panel is satisfied with the high level of both bachelor and master theses. The theses are well-written and well-executed. The topics of the theses are

relevant within the Nutrition and Health-programme, and appropriate for the respective bachelor's and master's level. The panel noted that particularly the statistical analyses of the master theses were of a high level. As part of the MSc programme, the panel looked into a few theses of the parttime variant as well and was also impressed with the quality of those theses.

The alumni with whom the panel spoke were satisfied with the programmes. Alumni feel that the programmes have provided them with a good foundation from which they can benefit in their academic careers. Alumni from both programmes mentioned that the programmes taught them to make connections with other science fields.

The BSc graduates are admitted to a wide range of master's programmes within the biomedical domain and in related areas. A large proportion of master's alumni continues their academic career as a PhD candidate or continues as a nutritionist in industry or in clinical settings. According to the alumni, the *MSc programme* formed an excellent preparation to becoming a PhD candidate. In 2021, the National Alumni Survey indicated that 97% of the participants had found a paid job after graduation from the MSc Nutrition and Health. It took on average 3.9 months to find a paid job.

### Considerations

The theses produced in the bachelor's and master's programme demonstrate clearly that the students realize the intended learning outcomes and attain the required bachelor's and master's level. Alumni are satisfied with the programmes and feel that they have been provided with a good foundation from which they can benefit in their academic and professional careers.

### Conclusion

The panel concludes that the programmes meet standard 4.

### General conclusion

The panel's assessment of the BSc Voeding en Gezondheid and the MSc Nutrition and Health (fulltime and parttime) is positive.

### Development points

1. Integrate the skills portfolio more with courses and pay more attention to offering soft skills in relevant academic and professional contexts in the curriculum.
2. Further improve the elective offering in the third year of the bachelor's programme, by adding more nutrition related courses.
3. Give students insight into the broad and diverse possibilities after graduation next to science and research by involving alumni and the working field more in the programmes, so students can benefit from their expertise and experience.
4. Investigate measures to decrease the workload of the teaching staff, study advisors as well as the Examining Board.
5. Provide the Examining Board with sufficient facilities to be able to catch up on their work and decrease workload.
6. Continue reducing the number of multiple choice only assessments.
7. Pay attention to putting the new assessment policy from paper into practice, keeping the feasibility for teaching staff in mind while doing this.
8. Ensure that there is always an independent second reviewer involved in bachelor thesis assessment.
9. Reconsider the double role of study advisors by excluding them from any involvement in examination.

## Appendix 1. Intended learning outcomes

### Intended learning outcomes bachelor programme

- Demonstrate understanding of (bio)chemistry and human and cellular physiology in order to understand the effect of nutrition on human health and disease from a biomedical perspective, including the underlying biological mechanisms;
- Demonstrate understanding of basic food and nutrition concepts;
- Demonstrate understanding of the individual and environmental determinants of nutrition behaviour;
- Judge scientific research publications in the domain of nutrition and health by critically reflecting on scientific research design, methodology and results;
- Choose and carry out appropriate (statistical) data analysis and interpret the results (under supervision);
- Write and conduct a (literature) research plan in the field of nutrition and health and report the results in a scientific manner (under supervision);
- Apply domain specific laboratory techniques and interpret the results (under supervision);
- Apply nutritional assessment methods commonly used in nutrition research at individual human level and interpret the results (under supervision);
- Make judgements (under supervision) based on social and ethical issues that arise in work on or study of human nutrition;
- Co-operate in a team of students to achieve specific targets within courses, e.g. writing reports or solving problems;
- Communicate (verbally and in writing) the outcomes of learning, ideas, problems and solutions to both specialist and non-specialist audiences;
- Design and plan their own learning path based on reflection on personal knowledge, skills and performance.

### Intended learning outcomes master programme

- Apply advanced and state-of-the-art knowledge on the role of nutrition on human health and disease as well as the relevant research designs within the chosen specialization;
- Understand concepts on the role of nutrition on human health and disease at the population, individual and cellular level;
- Analyse advanced and complex concepts, approaches and methods and reflect upon scientific literature with special reference to the chosen specialization, as well as (closely) related disciplines;
- Design a research plan within the topics of the chosen specialization and critically reflect (under supervision) on the phases of the scientific research process;
- Carry out a research plan within the chosen specialization by using appropriate methods, research designs and techniques to collect data and critically interpret the results;
- Apply specialization-specific advanced laboratory and analytical techniques and statistical methods for the collection and analyses of data, and evaluate their suitability for addressing specific research questions and hypotheses;
- Respond to social and ethical issues that arise in work on or study of human nutrition;
- Co-operate as a specialist in a multidisciplinary team to solve more complex problems;
- Communicate project outcomes, rationale, and methods convincingly, to specialists and non-specialists using appropriate techniques;
- Design and plan their own learning process based on evaluation of personal knowledge, skills, attitudes and performance.

## Appendix 2. Programme curriculum Bachelor Nutrition and Health

| Bachelor Nutrition and Health (2023)   |           |
|--|-----------|
| Content  | ▼         |
| Practical information  | ▼         |
| <b>Programme</b>   | ▲         |
| <i>A printable version of this programme is available under the Practical Information heading.</i> |           |
| <b>Study programme</b>   | ECTS: 180 |
| <i>All components listed below</i>   |           |
| ▲ <b>1 Common Part</b>   | 136       |
| <i>All components listed below</i>   |           |
| ▲ <b>1.1 Compulsory Courses in Common Part</b>   | 121       |
| Mandatory<br>Choose all courses from this cluster.   |           |
| <b>N&amp;H: Macronutrients, Energy and Health (HNH10806)</b>                                       | 6         |
| Year 1, Period 1 Morning   |           |
| <b>Bio-organic Chemistry for Life Sciences (ORC13803)</b>  | 3         |
| Year 1, Period 1 Afternoon 2nd half of period  |           |
| <b>General Safety (ZSS06000)</b>   | 0         |
| Year 1, Period 1 Distance learning   |           |
| <b>Laboratory Safety (ZSS06100)</b>  | 0         |
| Year 1, Period 1 Distance learning   |           |
| <b>Cell Biology (CBI10306)</b>   | 6         |
| Year 1, Period 2 Afternoon   |           |
| <b>Intro to field Nutrition and Health (HNH11804)</b>  | 4         |
| Year 1, Period 2 Morning, Combine with YNH10302  |           |
| <b>Basic Skills for BVG-students (YNH10302)</b>  | 2         |
| Year 1, Period 2 Morning, Combine with HNH11804  |           |
| <b>Principles of Human Physiology (HAP10306)</b>   | 6         |
| Year 1, Period 3 Whole day   |           |
| <b>Statistics 2 (MAT15403)</b>   | 3         |
| Year 1, Period 4 Morning   |           |
| <b>General Chemistry for the Life Sciences (PCC12803)</b>  | 3         |
| Year 1, Period 4 Afternoon   |           |
| <b>Presentation &amp; Reflection Skills (BSc) (ELS10301)</b>                                       | 1         |
| Year 1, Period 5 Morning, Combine with HNH28305  |           |
| <b>Metabolic Aspects of Nutrition (HNH28305)</b>   | 5         |
| Year 1, Period 5 Morning, Combine with ELS10301  |           |
| <b>Social Psychology (MCB10806)</b>  | 6         |
| Year 1, Period 5 Afternoon   |           |

|  |   |
|--|---|
| <b>Food Technology for Nutritionists (FCH12306)</b><br>Year 1, Period 6 Morning                        | 6 |
| <b>Microbiology for Nutrition and Health (MIB11306)</b><br>Year 1, Period 6 Afternoon                  | 6 |
| <b>Integrated Human Physiology (HAP21303)</b><br>Year 2, Period 1 Morning 2nd half of period           | 3 |
| <b>Intro to Epidemiology and Public Health (HMH24806)</b><br>Year 2, Period 1 Afternoon                | 6 |
| <b>General Toxicology (TOX20303)</b><br>Year 2, Period 1 Morning 1st half of period                    | 3 |
| <b>Nutrition Behaviour (HMH20306)</b><br>Year 2, Period 2 Afternoon                                    | 6 |
| <b>Pharmacology and Nutrition (HMH23306)</b><br>Year 2, Period 2 Morning                               | 6 |
| <b>Personal Motivation Assessment BVG (YMH20301)</b><br>Year 2/3, Period 2 Other                       | 1 |
| <b>Measuring Dietary Intake (HMH29303)</b><br>Year 2, Period 3 Afternoon                               | 3 |
| <b>Advanced Statistics for Nutritionists (MAT24306)</b><br>Year 2, Period 3 Morning + Period 4 Morning | 6 |
| <b>Data Structures &amp; Algorithms for Health (INF22803)</b><br>Year 2, Period 4 Afternoon            | 3 |
| <b>Introduction to Human Immunology (CBI20803)</b><br>Year 2, Period 5 Morning, Combine with VIR20803  | 3 |
| <b>Research Methods Nutrition and Health I (HMH25806)</b><br>Year 2, Period 5 Afternoon                | 6 |
| <b>Human Infectious Diseases (VIR20803)</b><br>Year 2, Period 5 Morning, Combine with CBI20803         | 3 |
| <b>Principles of Human Genetics (GEN21803)</b><br>Year 2, Period 6 Afternoon 1st half of period        | 3 |
| <b>Research Methods Nutrition and Health II (HMH26306)</b><br>Year 2, Period 6 Morning                 | 6 |
| <b>Basic Sensory Science (HMH29803)</b><br>Year 2, Period 6 Afternoon 2nd half of period               | 3 |
| <b>Skills Portfolio for BVG-Part 1 (YMH10301)</b><br>Year 3  | 1 |
| <b>Skills Portfolio for BVG-Part 2 (YMH22301)</b><br>Year 3  | 1 |
| <b>Skills Portfolio for BVG-Part 3 (YMH22801)</b><br>Year 3  | 1 |

|   |    |
|---|----|
| <p>^ <b>1.2 Restricted Optionals (1) in Common Part</b><br/> Restricted choice<br/> Choose MAT14803 Mathematics 1 if you did Math A at VWO; choose MAT15303 Statistics 1 if you did Math B at VWO.</p>  | 3  |
| <p><b>Mathematics 1 (MAT14803)</b><br/> Year 1, Period 1 Afternoon 1st half of period</p>   | 3  |
| <p><b>Statistics 1 (MAT15303)</b><br/> Year 1, Period 1 Afternoon 1st half of period</p>  | 3  |
| <p>^ <b>1.3 Restricted Optionals (2) in Common Part</b><br/> Restricted choice<br/> Choose 0 - 3 credits from this cluster.</p>   | 0  |
| <p><b>Lectures and Excursion (YNH21301)</b><br/> Year 3</p>   | 1  |
| <p><b>European Study trip (HNH22402)</b><br/> Year 3, Period 3 Other</p>  | 2  |
| <p>^ <b>1.4 Thesis</b><br/> Restricted choice<br/> Choose the BSc thesis. Before starting with the BSc thesis students must have completed at least 102 credits of compulsory courses including all 60 credits of the first year. Depending on availability of projects, students can extend their BSc thesis with 6 credits experimental work at the same chair group.</p> | 12 |
| <p><b>BSc Thesis Nutrition and Health (YNH80312)</b><br/> Year 3</p>  | 12 |
| <p><b>BSc Thesis Extension - Nutrition&amp;Health (YNH81306)</b><br/> Year 3</p>  | 6  |
| <p>^ <b>2 Electives</b><br/> Minor or electives<br/> As a student you choose a minor and/or individual minor and/or elective courses to complete your BSc programme up to (at least) 180 credits.</p>   | 0  |

## Appendix 6: Master Nutrition and Health - Common Part

| Compulsory Course in Common Part   |   |         |          |   |                                       |
|--|---|---------|----------|---|---------------------------------------|
| Choose the course from this cluster.   |   |         |          |   |                                       |
| Code   | Name  | Credits | Year     | Periods   | Remark                                |
| VNH30803   | Professional Perspectives on Nutrition  | 3       | Year 1   | Academic Year   |                                       |
| Academic Master Cluster  |   |         |          |   |                                       |
| Choose either one of the Consultancy Training options with MOS or the Research Master Cluster or the the Data Science Master Cluster. Check the requirements that apply  |   |         |          |   |                                       |
| Academic Consultancy Training with MOS   |   |         |          |   |                                       |
| Choose one of the Consultancy Training options and choose at least 3 credits (max: 6 credits) worth of Modular Skills Training courses (MOS).  |   |         |          |   |                                       |
| Code   | Name  | Credits | Year     | Periods   | Remark                                |
| YMC60809   | Academic Consultancy Training   | 9       | Year 1/2 | Period 1-2,5,6 whole day, Period 3 morning + Period 4 whole day   |                                       |
| ELS68806   | BITT - Learning Journey   | 6       | Year 1/2 | Period 5 other+Period 6 other   | Combination with VNH60803 possible    |
| VNH60803   | Bio-Tech-Med-Nutrition Interdisciplinary Team Training (BITT)   | 3       | Year 1/2 | Period 5 other+Period 6 other   | Combination with ELS68806 possible    |
| HNH60309   | Designing Sustainable Food Based Dietary Guidelines   | 9       | Year 1/2 | Period 6 other  | Combination with MOS courses possible |
| Modular Skills Training  |   |         |          |   |                                       |
| Next to a selection of Modular Skills Training courses (MOS), you can also select CPT30503 Data Science Ethics to take at least 3 credits; more up to 6 credits is allowed.  |   |         |          |   |                                       |
| Data Science Master Cluster  |   |         |          |   |                                       |
| Code   | Name  | Credits | Year     | Periods   | Remark                                |
| CPT30503   | Data Science Ethics   | 3       | Year 1   | Period 6 first half afternoon   |                                       |
| CHL60309   | Solving Societal Health Challenges with Data Science  | 9       | Year 1   | Period 6 other  |                                       |
| Research Master Cluster  |   |         |          |   |                                       |
| Note that YWU60312 has specific prerequisites and is to be planned after the MSc thesis.   |   |         |          |   |                                       |
| Code   | Name  | Credits | Year     | Periods   | Remark                                |
| YWU60312   | Research Master Cluster: Proposal Writing   | 12      | Year 2   | Period 1 whole day, Period 2 whole day, Period 3 whole day+Period 4 whole day, Period 5 whole day, Period 6 whole day |                                       |
| Internship or Research Practice  |   |         |          |   |                                       |
| Choose either an internship or a research practice, both can be extended up to 36 credits.<br>Prior to starting with a project, students should have successfully completed at least 24 credits at MSc level including all individually assigned compulsory electives as mentioned with the specialisation. The FQD internship is linked to specialization D and F only. |   |         |          |   |                                       |
| Code   | Name  | Credits | Year     | Periods   | Remark                                |
| Diverse codes  | Cell Biology and Immunology,<br>Consumption and Healthy Lifestyles,<br>Strategic Communication,<br>Food Quality and Design,<br>Human and Animal Physiology,<br>Host-Microbe Interactomics,<br>Nutrition, Metabolism and Genomics,<br>Sensory Science and Eating Behaviour,<br>Nutrition and Disease,<br>Global Nutrition,<br>Nutritional Biology,<br>Toxicology | 24      | Year 1/2 | Academic Year   |                                       |
| Optional Career Orientation  |   |         |          |   |                                       |
| Optionally, students can participate in lectures, short or longer excursions and workshops that are offered as part of the career orientation. When attending these activities and reflecting on one's own career orientation, students can be awarded credits towards these two courses.  |   |         |          |   |                                       |
| Code   | Name  | Credits | Year     | Periods   | Remark                                |
| YNH21301   | Lectures and Excursion  | 1       |          |   |                                       |
| YNH31302   | Orientation on Career Perspective   | 2       |          |   |                                       |
| Compulsory Safety Instructions   |   |         |          |   |                                       |
| Choose the Safety Instructions unless you have already taken these courses in your bachelor.   |   |         |          |   |                                       |
| Code   | Name  | Credits | Year     | Periods   | Remark                                |
| ZSS06000   | General Safety  | 0       | Year 1   | Academic Year   |                                       |
| ZSS06100   | Laboratory Safety   | 0       | Year 1   | Academic Year   |                                       |

## Appendix 5: Spec. A - Nutritional and Public Health Epidemiology

Check with your study adviser for the courses that you need to include in your electives if they lack in your prior education, these can include a.o. HNH24306, HNH24806 and MAT20306.

| Compulsory Courses in Spec. A  |  |         |          |  |   |
|--|--|---------|----------|--|---|
| Choose all courses of this cluster.  |  |         |          |  |   |
| Code   | Name   | Credits | Year     | Periods                                | Remark                                  |
| HNH31006   | Study Design and Interpretation in Epidemiology and Public Health  | 6       | Year 1   | Period 2 morning                       |   |
| HNH31506   | Analytical Epidemiology I: Modelling in Nutrition & Disease Research   | 6       | Year 1   | Period 3 whole day                     |   |
| HNH31606   | Analytical Epidemiology II   | 6       | Year 1   | Period 4 whole day                     |   |
| Restricted Options (1) in Spec. A  |  |         |          |  |   |
| Choose at least 6 credits from this cluster that were not in your prior education.   |  |         |          |  |   |
| Code   | Name   | Credits | Year     | Periods                                | Remark                                  |
| HNH37006   | Data Science for Health: Principles  | 6       | Year 1/2 | Period 2 morning                       |   |
| INF34306   | Data Science Concepts  | 6       | Year 1/2 | Period 2 afternoon                     |   |
| MAT32806   | Statistics for Data Scientists   | 6       | Year 1/2 | Period 3 whole day, Period 5 afternoon |   |
| HNH32806   | Exposure Assessment in Nutrition and Health Research   | 6       | Year 1/2 | Period 5 morning                       |   |
| CHL32806   | Public Health Practice   | 6       | Year 1/2 | Period 5 afternoon                     |   |
| Restricted Options (2) in Spec. A  |  |         |          |  |   |
| Choose at least 6 credits from this cluster, that were not in your prior education, to broaden your knowledge within the Nutrition and Health domain.  |  |         |          |  |   |
| Code   | Name   | Credits | Year     | Periods                                | Remark                                  |
| HAP31806   | Molecular Regulation of Health and Disease   | 6       | Year 1/2 | Period 1 morning                       |   |
| HNH26806   | Introduction to Global Nutrition and Health  | 6       | Year 1/2 | Period 1 morning                       |   |
| HNH37806   | Nutrition and Cancer   | 6       | Year 1/2 | Period 1 morning                       |   |
| MAT34806   | Bayesian Data Analysis   | 6       | Year 1/2 | Period 1 morning                       |   |
| HNH30506   | Principles of Sensory Science  | 6       | Year 1/2 | Period 1 afternoon                     |   |
| HAP30306   | Nutritional Physiology   | 6       | Year 1/2 | Period 2 morning                       |   |
| HNH32006   | Design and Interpretation of Nutrition Intervention Studies  | 6       | Year 1/2 | Period 2 afternoon                     |   |
| HNH32106   | Nutrition and Cardiometabolic Diseases   | 6       | Year 1/2 | Period 2 afternoon                     |   |
| HNH27806   | General Medicine   | 6       | Year 1/2 | Period 4 whole day                     |   |
| HNH36406   | Food Systems for Healthier and Sustainable Diets   | 6       | Year 1/2 | Period 4 whole day                     |   |
| TOX30306   | Food Toxicology  | 6       | Year 1/2 | Period 4 whole day                     |   |
| HNH30306   | Psychobiology of Food Choice and Eating Behaviour  | 6       | Year 1/2 | Period 5 morning                       |   |
| HNH36806   | Nutrition and Sports   | 6       | Year 1/2 | Period 5 morning                       |   |
| HNH31706   | Nutrition and the Brain  | 6       | Year 1/2 | Period 5 afternoon                     |   |
| HNH39106   | Data Science for Nutritional Epidemiology  | 6       | Year 1/2 | Period 5 afternoon                     |   |
| HNH39806   | Hidden Hunger: Micronutrient Deficiencies in Low and Middle Income Countries                                 | 6       | Year 1/2 | Period 5 afternoon                     |   |
| HNH37506   | Metabolic Consequences of Chronic Diseases with Muscle Wasting: Nutritional and Pharmacological Intervention | 6       | Year 1/2 | Period 6 morning                       |   |
| Restricted Options (3) in Spec. A  |  |         |          |  |   |
| Choose HNH38802 when doing an epidemiological thesis in Wageningen.  |  |         |          |  |   |
| Code   | Name   | Credits | Year     | Periods                                | Remark                                  |
| HNH38802   | Concepts and Methods in Epidemiology   | 2       | Year 2   | Academic Year                          | Continuing series of bi-weekly meetings |
| Thesis in Spec. A  |  |         |          |  |   |
| Choose 1 thesis from this cluster. The thesis can be extended up to 39 credits.  |  |         |          |  |   |
| Prior to starting with the thesis, students should have successfully completed at least 24 credits at MSc level including all individually assigned compulsory electives as mentioned above. |  |         |          |  |   |
| Code   | Name   | Credits | Year     | Periods                                | Remark                                  |
| CHL80436   | MSc Thesis Consumption and Healthy Lifestyles  | 36      | Year 2   | Academic Year                          |   |
| HNH84836   | MSc Thesis Nutrition and Disease   | 36      | Year 2   | Academic Year                          |   |
| HNH85836   | MSc Thesis Global Nutrition  | 36      | Year 2   | Academic Year                          |   |



Appendix 5:  
Spec. B - Nutritional Physiology and Health Status

| Check with your study adviser for the courses that you need to include in your electives if they lack in your prior education, these can include a.o. HNH24306, HNH24806 and MAT20306.       |  |         |          |                    |        |
|--|--|---------|----------|--------------------|--------|
| <b>Compulsory Courses in Spec. B</b>   |  |         |          |                    |        |
| Choose all courses of this cluster.  |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| HAP30306   | Nutritional Physiology   | 6       | Year 1   | Period 2 morning   |        |
| HNH32006   | Design and Interpretation of Nutrition Intervention Studies  | 6       | Year 1   | Period 2 afternoon |        |
| HNH34106   | Nutrition and the Ageing Body  | 6       | Year 1   | Period 3 whole day |        |
| <b>Restricted Optionals (1) in Spec. B</b>   |  |         |          |                    |        |
| Choose at least 6 credits from this cluster that were not in your prior education.   |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| HNH30306   | Psychobiology of Food Choice and Eating Behaviour  | 6       | Year 1   | Period 5 morning   |        |
| HNH36806   | Nutrition and Sports   | 6       | Year 1   | Period 5 morning   |        |
| HNH31706   | Nutrition and the Brain  | 6       | Year 1   | Period 5 afternoon |        |
| HNH39806   | Hidden Hunger: Micronutrient Deficiencies in Low and Middle Income Countries                                 | 6       | Year 1   | Period 5 afternoon |        |
| HAP31806   | Molecular Regulation of Health and Disease   | 6       | Year 1/2 | Period 1 morning   |        |
| HNH37506   | Metabolic Consequences of Chronic Diseases with Muscle Wasting; Nutritional and Pharmacological Intervention | 6       | Year 1/2 | Period 6 morning   |        |
| <b>Restricted Optionals (2) in Spec. B</b>   |  |         |          |                    |        |
| Choose at least 6 credits from this cluster, that were not in your prior education, to broaden your knowledge within the Nutrition and Health domain.  |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| HNH26806   | Introduction to Global Nutrition and Health  | 6       | Year 1/2 | Period 1 morning   |        |
| HNH37806   | Nutrition and Cancer   | 6       | Year 1/2 | Period 1 morning   |        |
| HNH30506   | Principles of Sensory Science  | 6       | Year 1/2 | Period 1 afternoon |        |
| HNH31006   | Study Design and Interpretation in Epidemiology and Public Health  | 6       | Year 1/2 | Period 2 morning   |        |
| HNH37006   | Data Science for Health: Principles  | 6       | Year 1/2 | Period 2 morning   |        |
| FCH21806   | Food Related Allergies and Intolerances  | 6       | Year 1/2 | Period 2 afternoon |        |
| HNH31206   | Immunometabolism   | 6       | Year 1/2 | Period 2 afternoon |        |
| HNH32106   | Nutrition and Cardiometabolic Diseases   | 6       | Year 1/2 | Period 2 afternoon |        |
| INF34306   | Data Science Concepts  | 6       | Year 1/2 | Period 2 afternoon |        |
| HAP32806   | Energy for Life- Molecular Nutritional Physiology of Energy Metabolism                                       | 6       | Year 1/2 | Period 4 whole day |        |
| HNH27806   | General Medicine   | 6       | Year 1/2 | Period 4 whole day |        |
| HNH34306   | Advanced Dietetics   | 6       | Year 1/2 | Period 4 whole day |        |
| HNH36406   | Food Systems for Healthier and Sustainable Diets   | 6       | Year 1/2 | Period 4 whole day |        |
| TOX30306   | Food Toxicology  | 6       | Year 1/2 | Period 4 whole day |        |
| HAP30806   | Brain, Hormones and Metabolism   | 6       | Year 1/2 | Period 5 morning   |        |
| HNH32806   | Exposure Assessment in Nutrition and Health Research   | 6       | Year 1/2 | Period 5 morning   |        |
| CHL32806   | Public Health Practice   | 6       | Year 1/2 | Period 5 afternoon |        |
| HNH39206   | Clinical Sensory Science and Eating Behaviour  | 6       | Year 1/2 | Period 5 afternoon |        |
| <b>Thesis in Spec. B</b>   |  |         |          |                    |        |
| Choose 1 thesis from this cluster. The thesis can be extended up to 39 credits.  |  |         |          |                    |        |
| Prior to starting with the thesis, students should have successfully completed at least 24 credits at MSc level including all individually assigned compulsory electives as mentioned above. |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| HAP80436   | MSc Thesis Human and Animal Physiology   | 36      | Year 2   | Academic Year      |        |
| HNH83836   | MSc Thesis Sensory Science and Eating Behaviour  | 36      | Year 2   | Academic Year      |        |
| HNH84836   | MSc Thesis Nutrition and Disease   | 36      | Year 2   | Academic Year      |        |
| HNH85836   | MSc Thesis Global Nutrition  | 36      | Year 2   | Academic Year      |        |
| HNH86336   | MSc Thesis Nutritional Biology   | 36      | Year 2   | Academic Year      |        |

Appendix 5:  
Spec. C - Molecular Nutrition and Toxicology

*Check with your study adviser for the courses that you need to include in your electives if they lack in your prior education, these can include a.o. HNH24306, HNH24806 and MAT20306.*

| Compulsory Courses in Spec. C       |   |         |        |                    |        |
|-------------------------------------|---|---------|--------|--------------------|--------|
| Choose all courses of this cluster. |   |         |        |                    |        |
| Code                                | Name  | Credits | Year   | Periods            | Remark |
| BIF20306                            | Introduction to Bioinformatics                  | 6       | Year 1 | Period 1 morning   |        |
| HAP30306                            | Nutritional Physiology                          | 6       | Year 1 | Period 2 morning   |        |
| HNH31106                            | Practical Tools in Molecular Nutrition Research | 6       | Year 1 | Period 3 whole day |        |

  

| Restricted Options (1) in Spec. C  |  |         |          |                    |        |
|--|--|---------|----------|--------------------|--------|
| Choose at least 6 credits from this cluster that were not in your prior education. |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| CB130306   | Human and Veterinary Immunology  | 6       | Year 1   | Period 1 afternoon |        |
| HNH31206   | Immunometabolism   | 6       | Year 1   | Period 2 afternoon |        |
| HAP32806   | Energy for Life- Molecular Nutritional Physiology of Energy Metabolism                                       | 6       | Year 1   | Period 4 whole day |        |
| TOX30306   | Food Toxicology  | 6       | Year 1   | Period 4 whole day |        |
| HNH34806   | Applied Nutrigenomics  | 6       | Year 1   | Period 5 afternoon |        |
| BIF31806   | Data Driven Discovery in the Life Sciences: Hypothesis Generation from Omics Data                            | 6       | Year 1   | Period 6 morning   |        |
| HNH37506   | Metabolic Consequences of Chronic Diseases with Muscle Wasting; Nutritional and Pharmacological Intervention | 6       | Year 1   | Period 6 morning   |        |
| HAP31806   | Molecular Regulation of Health and Disease   | 6       | Year 1/2 | Period 1 morning   |        |
| MIB32303   | Human Microbiome   | 3       | Year 1/2 | Period 4 morning   |        |

  

| Restricted Options (2) in Spec. C   |  |         |          |   |        |
|---|--|---------|----------|---|--------|
| Choose at least 6 credits from this cluster, that were not in your prior education, to broaden your knowledge within the Nutrition and Health domain. |  |         |          |   |        |
| Code  | Name   | Credits | Year     | Periods   | Remark |
| HNH26806  | Introduction to Global Nutrition and Health                                  | 6       | Year 1/2 | Period 1 morning                                  |        |
| HNH37806  | Nutrition and Cancer   | 6       | Year 1/2 | Period 1 morning                                  |        |
| HNH30506  | Principles of Sensory Science  | 6       | Year 1/2 | Period 1 afternoon                                |        |
| FCH21806  | Food Related Allergies and Intolerances                                      | 6       | Year 1/2 | Period 2 afternoon                                |        |
| HNH32006  | Design and Interpretation of Nutrition Intervention Studies                  | 6       | Year 1/2 | Period 2 afternoon                                |        |
| HNH32106  | Nutrition and Cardiometabolic Diseases                                       | 6       | Year 1/2 | Period 2 afternoon                                |        |
| INF34306  | Data Science Concepts  | 6       | Year 1/2 | Period 2 afternoon                                |        |
| EZO32303  | Laboratory Animal Science: Design and Ethics in Animal Experiments           | 3       | Year 1/2 | Period 4 afternoon, Period 6 first half afternoon |        |
| HNH27806  | General Medicine   | 6       | Year 1/2 | Period 4 whole day                                |        |
| HAP30806  | Brain, Hormones and Metabolism   | 6       | Year 1/2 | Period 5 morning                                  |        |
| HNH30306  | Psychobiology of Food Choice and Eating Behaviour                            | 6       | Year 1/2 | Period 5 morning                                  |        |
| HNH36806  | Nutrition and Sports   | 6       | Year 1/2 | Period 5 morning                                  |        |
| HNH31706  | Nutrition and the Brain  | 6       | Year 1/2 | Period 5 afternoon                                |        |
| HNH39806  | Hidden Hunger: Micronutrient Deficiencies in Low and Middle Income Countries | 6       | Year 1/2 | Period 5 afternoon                                |        |
| MAT32806  | Statistics for Data Scientists   | 6       | Year 1/2 | Period 5 afternoon                                |        |
| HNH31006  | Study Design and Interpretation in Epidemiology and Public Health            | 6       | Year 2   | Period 2 morning                                  |        |
| HAP31306  | Development and Healthy Aging  | 6       | Year 2   | Period 2 afternoon                                |        |

  

| Thesis in Spec. C  |   |         |        |               |        |
|--|---|---------|--------|---------------|--------|
| Choose 1 thesis from this cluster. The thesis can be extended up to 39 credits.  |   |         |        |               |        |
| Prior to starting with the thesis, students should have successfully completed at least 24 credits at MSc level including all individually assigned compulsory electives as mentioned above. |   |         |        |               |        |
| Code   | Name  | Credits | Year   | Periods       | Remark |
| CB180436   | MSc Thesis Cell Biology and Immunology        | 36      | Year 2 | Academic Year |        |
| HAP80436   | MSc Thesis Human and Animal Physiology        | 36      | Year 2 | Academic Year |        |
| HM180336   | MSc Thesis Host-Microbe Interactomics         | 36      | Year 2 | Academic Year |        |
| HNH82436   | MSc Thesis Nutrition, Metabolism and Genomics | 36      | Year 2 | Academic Year |        |
| HNH86336   | MSc Thesis Nutritional Biology                | 36      | Year 2 | Academic Year |        |
| TOX80436   | MSc Thesis Toxicology                         | 36      | Year 2 | Academic Year |        |

Appendix 5:  
Spec. D - Sensory Science

Check with your study adviser for the courses that you need to include in your electives if they lack in your prior education, these can include a.o. HNH24306, HNH24806 and MAT20306.

| <b>Compulsory Courses in Spec. D</b>  |   |         |          |                    |        |
|---|---|---------|----------|--------------------|--------|
| When HNH30506 was part of your BSc programme, it is not compulsory anymore and can be removed by your study adviser.  |   |         |          |                    |        |
| Code  | Name  | Credits | Year     | Periods            | Remark |
| HNH30506  | Principles of Sensory Science                                     | 6       | Year 1   | Period 1 afternoon |        |
| <b>Restricted Options (1) in Spec. D</b>  |   |         |          |                    |        |
| Choose at least 3 courses from this cluster that were not in your prior education, in consultation with the study adviser.<br>Do note that some of these courses build upon each other.   |   |         |          |                    |        |
| Code  | Name  | Credits | Year     | Periods            | Remark |
| MCB32806  | Advanced Sensory Methods and Sensometrics                         | 6       | Year 1   | Period 2 afternoon |        |
| HNH30606  | Instrumental Sensory Science                                      | 6       | Year 1   | Period 3 whole day |        |
| MCB33306  | Integrated Sensory Science  | 6       | Year 1   | Period 4 whole day |        |
| HNH39206  | Clinical Sensory Science and Eating Behaviour                     | 6       | Year 1   | Period 5 afternoon |        |
| <b>Restricted Options (2) in Spec. D</b>  |   |         |          |                    |        |
| Choose at least 6 credits from this cluster, that were not in your prior education.   |   |         |          |                    |        |
| Code  | Name  | Credits | Year     | Periods            | Remark |
| FQD37806  | Food Flavour Design   | 6       | Year 1/2 | Period 2 morning   |        |
| FQD31806  | Product Properties and Consumer Wishes                            | 6       | Year 1/2 | Period 2 afternoon |        |
| INF34306  | Data Science Concepts   | 6       | Year 1/2 | Period 2 afternoon |        |
| HNH30306  | Psychobiology of Food Choice and Eating Behaviour                 | 6       | Year 1/2 | Period 5 morning   |        |
| MAT32806  | Statistics for Data Scientists                                    | 6       | Year 1/2 | Period 5 afternoon |        |
| MCB30806  | Sensory Perception and Consumer Preference                        | 6       | Year 1/2 | Period 5 afternoon |        |
| <b>Restricted Options (3) in Spec. D</b>  |   |         |          |                    |        |
| Choose at least 6 credits from this cluster, that were not part of your prior education, to broaden your knowledge within the Nutrition and Health domain.  |   |         |          |                    |        |
| Code  | Name  | Credits | Year     | Periods            | Remark |
| HAP31806  | Molecular Regulation of Health and Disease                        | 6       | Year 1/2 | Period 1 morning   |        |
| HNH26806  | Introduction to Global Nutrition and Health                       | 6       | Year 1/2 | Period 1 morning   |        |
| HNH37806  | Nutrition and Cancer  | 6       | Year 1/2 | Period 1 morning   |        |
| HAP30306  | Nutritional Physiology  | 6       | Year 1/2 | Period 2 morning   |        |
| HNH31006  | Study Design and Interpretation in Epidemiology and Public Health | 6       | Year 1/2 | Period 2 morning   |        |
| FCH21806  | Food Related Allergies and Intolerances                           | 6       | Year 1/2 | Period 2 afternoon |        |
| HNH32006  | Design and Interpretation of Nutrition Intervention Studies       | 6       | Year 1/2 | Period 2 afternoon |        |
| HNH32106  | Nutrition and Cardiometabolic Diseases                            | 6       | Year 1/2 | Period 2 afternoon |        |
| HNH32806  | Exposure Assessment in Nutrition and Health Research              | 6       | Year 1/2 | Period 5 morning   |        |
| FPE32306  | Food Digestion: Oral and Gastric Structure Breakdown              | 6       | Year 1/2 | Period 5 afternoon |        |
| HNH31706  | Nutrition and the Brain   | 6       | Year 1/2 | Period 5 afternoon |        |
| <b>Thesis in Spec. D</b>  |   |         |          |                    |        |
| Choose 1 thesis from this cluster. The thesis can be extended up to 39 credits.<br>Prior to starting with the thesis, students should have successfully completed at least 24 credits at MSc level including all individually assigned compulsory electives as mentioned above. |   |         |          |                    |        |
| Code  | Name  | Credits | Year     | Periods            | Remark |
| FQD80436  | MSc Thesis Food Quality and Design                                | 36      | Year 2   | Academic Year      |        |
| HNH83836  | MSc Thesis Sensory Science and Eating Behaviour                   | 36      | Year 2   | Academic Year      |        |

## Appendix 5:

## Spec. E - Systems Approach for Sustainable and Healthy Diets

Check with your study adviser for the courses that you need to include in your electives if they lack in your prior education, these can include a.o. HNH24306, HNH24806 and MAT20306. Do note that for this specialisations, students should opt for the Academic Consultancy Course 'Designing Sustainable Food Based Dietary Guidelines' as part of the Common Part.

**Compulsory Courses in Spec. E**

Choose all courses of this cluster:

| Code     | Name   | Credits | Year   | Periods            | Remark |
|----------|--|---------|--------|--------------------|--------|
| HNH31006 | Study Design and Interpretation in Epidemiology and Public Health    | 6       | Year 1 | Period 2 morning   |        |
| HNH30506 | Analytical Epidemiology 1: Modelling in Nutrition & Disease Research | 6       | Year 1 | Period 3 whole day |        |

**Restricted Optionals (1) in Spec. E**

Choose at least 12 but preferably 18 credits from this cluster, that were not part of your prior education, depending on your desired profile within the specialization.

| Code     | Name   | Credits | Year   | Periods            | Remark |
|----------|--|---------|--------|--------------------|--------|
| HNH26806 | Introduction to Global Nutrition and Health      | 6       | Year 1 | Period 1 morning   |        |
| HNH36406 | Food Systems for Healthier and Sustainable Diets | 6       | Year 1 | Period 4 whole day |        |
| PAP31806 | The Politics of Healthy and Sustainable Food     | 6       | Year 1 | Period 5 morning   |        |
| CHL32806 | Public Health Practice                           | 6       | Year 1 | Period 5 afternoon |        |

**Restricted Optionals (2) in Spec. E**

Choose at least 6 credits from this cluster, that were not in your prior education, to broaden your knowledge within the Nutrition and Health domain.

| Code     | Name   | Credits | Year     | Periods            | Remark |
|----------|--|---------|----------|--------------------|--------|
| HAP31806 | Molecular Regulation of Health and Disease   | 6       | Year 1/2 | Period 1 morning   |        |
| HNH37806 | Nutrition and Cancer   | 6       | Year 1/2 | Period 1 morning   |        |
| HNH30506 | Principles of Sensory Science  | 6       | Year 1/2 | Period 1 afternoon |        |
| HAP30306 | Nutritional Physiology   | 6       | Year 1/2 | Period 2 morning   |        |
| HNH37006 | Data Science for Health: Principles  | 6       | Year 1/2 | Period 2 morning   |        |
| HNH32106 | Nutrition and Cardiometabolic Diseases   | 6       | Year 1/2 | Period 2 afternoon |        |
| INF34306 | Data Science Concepts  | 6       | Year 1/2 | Period 2 afternoon |        |
| HNH27806 | General Medicine   | 6       | Year 1/2 | Period 4 whole day |        |
| TOX30306 | Food Toxicology  | 6       | Year 1/2 | Period 4 whole day |        |
| HAP30806 | Brain, Hormones and Metabolism   | 6       | Year 1/2 | Period 5 morning   |        |
| HNH30306 | Psychobiology of Food Choice and Eating Behaviour  | 6       | Year 1/2 | Period 5 morning   |        |
| HNH32806 | Exposure Assessment in Nutrition and Health Research   | 6       | Year 1/2 | Period 5 morning   |        |
| HNH36806 | Nutrition and Sports   | 6       | Year 1/2 | Period 5 morning   |        |
| HNH31706 | Nutrition and the Brain  | 6       | Year 1/2 | Period 5 afternoon |        |
| HNH39806 | Hidden Hunger: Micronutrient Deficiencies in Low and Middle Income Countries                                 | 6       | Year 1/2 | Period 5 afternoon |        |
| HNH37506 | Metabolic Consequences of Chronic Diseases with Muscle Wasting: Nutritional and Pharmacological Intervention | 6       | Year 1/2 | Period 6 morning   |        |

**Thesis in Spec. E**

Choose 1 thesis from this cluster. The thesis can be extended up to 39 credits.

Prior to starting with the thesis, students should have successfully completed at least 24 credits at MSc level including all individually assigned compulsory electives as mentioned above.

| Code     | Name  | Credits | Year   | Periods       | Remark |
|----------|---|---------|--------|---------------|--------|
| CHL80436 | MSc Thesis Consumption and Healthy Lifestyles | 36      | Year 2 | Academic Year |        |
| HNH85836 | MSc Thesis Global Nutrition                   | 36      | Year 2 | Academic Year |        |

Appendix 5:  
Spec. F - Food Digestion and Health

| Check with your study adviser for the courses that you need to include in your electives if they lack in your prior education, these can include a.o. HNH24306, HNH24806 and MAT20306.   |  |         |          |                    |        |
|--|--|---------|----------|--------------------|--------|
| <b>Compulsory Courses in Spec. F</b>   |  |         |          |                    |        |
| Choose all courses of this cluster.  |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| HAP30306   | Nutritional Physiology   | 6       | Year 1   | Period 2 morning   |        |
| HNH32006   | Design and Interpretation of Nutrition Intervention Studies  | 6       | Year 1   | Period 2 afternoon |        |
| <b>Restricted Optionals (1) in Spec. F</b>   |  |         |          |                    |        |
| Choose at least 12 credits on Food Digestion and Health specific courses, that were not in your prior education.   |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| FCH32306   | Food Digestion: Fermentation and Gut Health  | 6       | Year 1   | Period 3 whole day |        |
| HNH30706   | Food Digestion: Nutrient Breakdown and Absorption  | 6       | Year 1   | Period 4 whole day |        |
| FPE32306   | Food Digestion: Oral and Gastric Structure Breakdown   | 6       | Year 1   | Period 5 afternoon |        |
| <b>Restricted Optionals (2) in Spec. F</b>   |  |         |          |                    |        |
| For the link to the domain Food Science, choose at least 6 credits from this cluster, that were not part of your prior education.  |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| FCH30306   | Food Ingredient Functionality  | 6       | Year 1   | Period 1 morning   |        |
| FHM20306   | Food Microbiology  | 6       | Year 1   | Period 1 afternoon |        |
| FCH20006   | Food Chemistry   | 6       | Year 1/2 | Period 2 morning   |        |
| <b>Restricted Optionals (3) in Spec. F</b>   |  |         |          |                    |        |
| For the link to the domain Food Science, choose at least 6 credits from this cluster, that were not part of your prior education. If you have a strong background in Food Technology, there are even more advanced options available and allowed. Arrange this through your study adviser. |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| FPH20806   | Molecular Gastronomy   | 6       | Year 1/2 | Period 1 afternoon |        |
| FQD23806   | Meat Science   | 6       | Year 1/2 | Period 1 afternoon |        |
| FHM21806   | Food Fermentation  | 6       | Year 1/2 | Period 2 morning   |        |
| FQD21806   | Milk in the Dairy Chain  | 6       | Year 1/2 | Period 2 morning   |        |
| FCH21806   | Food Related Allergies and Intolerances  | 6       | Year 1/2 | Period 2 afternoon |        |
| FQD31806   | Product Properties and Consumer Wishes   | 6       | Year 1/2 | Period 2 afternoon |        |
| MIB32303   | Human Microbiome   | 3       | Year 1/2 | Period 4 morning   |        |
| TOX30306   | Food Toxicology  | 6       | Year 1/2 | Period 4 whole day |        |
| FQD31306   | Predicting Food Quality  | 6       | Year 1/2 | Period 5 morning   |        |
| FQD36306   | Food Fraud and Mitigation  | 6       | Year 1/2 | Period 5 afternoon |        |
| <b>Restricted Optionals (4) in Spec. F</b>   |  |         |          |                    |        |
| Choose at least 6 credits from this cluster, that were not in your prior education, to broaden your knowledge within the Nutrition and Health domain.  |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| HAP31806   | Molecular Regulation of Health and Disease   | 6       | Year 1/2 | Period 1 morning   |        |
| HNH37806   | Nutrition and Cancer   | 6       | Year 1/2 | Period 1 morning   |        |
| HNH32106   | Nutrition and Cardiometabolic Diseases   | 6       | Year 1/2 | Period 2 afternoon |        |
| HNH34106   | Nutrition and the Ageing Body  | 6       | Year 1/2 | Period 3 whole day |        |
| HNH32806   | Exposure Assessment in Nutrition and Health Research   | 6       | Year 1/2 | Period 5 morning   |        |
| HNH36806   | Nutrition and Sports   | 6       | Year 1/2 | Period 5 morning   |        |
| HNH31706   | Nutrition and the Brain  | 6       | Year 1/2 | Period 5 afternoon |        |
| HNH34806   | Applied Nutrigenomics  | 6       | Year 1/2 | Period 5 afternoon |        |
| HNH39806   | Hidden Hunger: Micronutrient Deficiencies in Low and Middle Income Countries                                 | 6       | Year 1/2 | Period 5 afternoon |        |
| HNH37506   | Metabolic Consequences of Chronic Diseases with Muscle Wasting: Nutritional and Pharmacological Intervention | 6       | Year 1/2 | Period 6 morning   |        |
| <b>Thesis in Spec. F</b>   |  |         |          |                    |        |
| Choose 1 thesis from this cluster. The thesis can be extended up to 39 credits. Prior to starting with the thesis, students should have successfully completed at least 24 credits at MSc level including all individually assigned compulsory electives as mentioned above.               |  |         |          |                    |        |
| Code   | Name   | Credits | Year     | Periods            | Remark |
| FCH80436   | MSc Thesis Food Chemistry  | 36      | Year 2   | Academic Year      |        |
| FPE80336   | MSc Thesis Food Process Engineering  | 36      | Year 2   | Academic Year      |        |
| FQD80436   | MSc Thesis Food Quality and Design   | 36      | Year 2   | Academic Year      |        |
| HAP80436   | MSc Thesis Human and Animal Physiology   | 36      | Year 2   | Academic Year      |        |
| HMI80336   | MSc Thesis Host-Microbe Interactomics  | 36      | Year 2   | Academic Year      |        |
| HNH82436   | MSc Thesis Nutrition, Metabolism and Genomics  | 36      | Year 2   | Academic Year      |        |
| HNH83836   | MSc Thesis Sensory Science and Eating Behaviour  | 36      | Year 2   | Academic Year      |        |
| HNH84836   | MSc Thesis Nutrition and Disease   | 36      | Year 2   | Academic Year      |        |
| HNH85836   | MSc Thesis Global Nutrition  | 36      | Year 2   | Academic Year      |        |
| HNH86336   | MSc Thesis Nutritional Biology   | 36      | Year 2   | Academic Year      |        |

**Figure 5. Curriculum of the distance-learning programme Nutritional Epidemiology and Public Health.** Click on the name of the course to find more information in the study handbook. Go to <http://courses.wur.nl> to find more information about the chairgroups that are involved in the MSc thesis and MSc internship/research practice of this variant.

|          | Period 1  | Period 2  | Period 3   | Period 4  | Period 5   | Period 6  |
|----------|---|---|--|---|--|---|
| Year 1   | Introduction to Descriptive Epidemiology and Public Health (3 EC) | Epidemiology and Public Health Policies (3 EC)                  | Essentials of Nutritional Physiology (3 EC)            | Randomised Controlled Trials (3 EC)                     | Assessment of Nutritional Status (3 EC)          | Nutrition and Non-Communicable Diseases (3 EC)  |
|          | Introduction to Analytical Epidemiology and Public Health (3 EC)  | Translation of Theory to Projects Skills 1 - 4 (12 EC in total) |  |   | Advanced Statistics for Distance Learning (3 EC) | Causal Thinking in Epidemiology (3 EC)          |
| Year 2   | Observational Designs and Assessment of Validity (3 EC)           | Advanced Analytical Epidemiology (3 EC)                         | Miscellaneous Tools in Epidemiological Research (3 EC) | Project 1 Skills 5 + 6 WUR week (continues in period 5) | Project 1 Skills 5 + 6 WUR week                  | Evaluation of Dietary Assessment Methods (3 EC) |
|          | Intermediate Analytical Epidemiology (3 EC)                       | Evaluation of Public Health Interventions (3 EC)                |  |   | Assessment of Dietary Intake (3 EC)              | Project 2                                       |
| Year 3/4 | MSc thesis (36 EC)  |   |  |   |  |   |
|          |   |   |  |   | MSc internship (24 EC)                           |   |

## Appendix 3. Programme of the site visit

### Site visit schedule Wageningen University & Research

**Wednesday 7 June 2023** 11.45 – 12.00 Arrival at Helix Building  
(Stippeneng 4, Building 124)  
12.00 - 13.00 Lunch & panel preparation & consultation hour  
13.00 - 14.00 Interview with management including Programme Committee  
14.00 - 14.30 Internal panel session  
14.30 - 15.15 Interview with BSc students  
15.15 - 16.00 Interview with Teaching staff BSc  
16.00 - 16.30 Internal panel session  
16.30 - 17.15 Interview with Examining board and study advisers  
17.15 - 17.30 Internal panel session

**Thursday 8 June 2023** 08.45 – 09.00 Arrival at Helix Building  
(Stippeneng 4, Building 124)  
09.00 - 09.30 Internal panel session  
09.30 - 10.15 Interview with MSc students distance-learning  
10.15 - 11.00 Interview with alumni and professional field  
11.00 - 11.30 Internal panel session  
11.30 - 12.15 Interview with MSc students  
12.15 - 13.00 Interview with Teaching staff MSc  
13.00 - 14.15 Lunch & internal panel session  
14.15 - 15.00 Final interview formal programme management  
15.00 - 16.30 Internal panel session  
16.30 - 17.30 Oral report panel, with a drink afterwards

## Appendix 4. Materials

Prior to the site visit, the panel studied 15 theses per programme. Information on the theses is available from Academion upon request. The panel also studied other materials, which included:

### **Bachelor Voeding en Gezondheid**

- Self Evaluation Report
- Domain Specific Reference Framework
- Position of BSc Nutrition and Health within the domain of biomedical sciences programmes
- Assessment Matrix
- Overview teaching staff
- MSc programmes after graduation
- Labour Market Research NIBI
- Education and Examination Regulation
- National Student Survey (NSE) results
- Assessment Policy
- BSc thesis rubrics
- Annual Report Examining Board 20/21
- Annual Report Examining Board 21/22
- Rules and Regulations of Examining Board

### **Master Nutrition and Health**

- Self Evaluation Report
- Domain Specific Reference Framework
- Position of the MSc Nutrition and Health within the biomedical domain
- Assessment Matrix MNH
- Assessment Matrix MNH Distance Learning
- Spec. A - Nutritional and Public Health Epidemiology
- Spec. B - Nutritional Physiology and Health Status
- Spec. C - Molecular Nutrition and Toxicology
- Spec. D - Sensory Science
- Spec. E - Systems Approach for Sustainable and Healthy Diets
- Spec. F - Food Digestion and Health
- Master Nutrition and Health - Common Part
- Overview teaching staff
- National Student Survey (NSE) results
- Assessment policy
- Education and Examination Regulation
- MSc thesis course guide WU
- MSc internship course guide WU
- Rules and Regulations of Examining Board
- Annual report Examining Board 20/21
- Annual report Examining Board 21/22
- National Alumni Survey (NAE) results