

**LIFE SCIENCES AND
NATURAL RESOURCES**
NUTRITION AND HEALTH
WAGENINGEN UNIVERSITY

QANU
Catharijnesingel 56
PO Box 8035
3503 RA Utrecht
The Netherlands

Phone: +31 (0) 30 230 3100
E-mail: support@qanu.nl
Internet: www.qanu.nl

Project number: Q0667

© 2019 QANU

Text and numerical material from this publication may be reproduced in print, by photocopying or by any other means with the permission of QANU if the source is mentioned.



CONTENTS

REPORT ON THE BACHELOR’S AND MASTER’S PROGRAMME NUTRITION AND HEALTH OF WAGENINGEN UNIVERSITY 5

ADMINISTRATIVE DATA REGARDING THE PROGRAMMES..... 5

ADMINISTRATIVE DATA REGARDING THE INSTITUTION..... 5

COMPOSITION OF THE ASSESSMENT PANEL 6

WORKING METHOD OF THE ASSESSMENT PANEL 6

SUMMARY JUDGEMENT 9

DESCRIPTION OF THE STANDARDS FROM THE ASSESSMENT FRAMEWORK FOR LIMITED PROGRAMME ASSESSMENTS..... 13

APPENDICES 27

APPENDIX 1: INTENDED LEARNING OUTCOMES 29

APPENDIX 2: OVERVIEW OF THE CURRICULUM 30

APPENDIX 3: PROGRAMME OF THE SITE VISIT 38

APPENDIX 4: THESES AND DOCUMENTS STUDIED BY THE PANEL 39

This report was finalized on 14 March 2019.

REPORT ON THE BACHELOR'S AND MASTER'S PROGRAMME NUTRITION AND HEALTH OF WAGENINGEN UNIVERSITY

This report takes the NVAO's Assessment Framework for Limited Programme Assessments as a starting point (September 2016).

ADMINISTRATIVE DATA REGARDING THE PROGRAMMES

Bachelor's programme Nutrition and Health

Name of the programme	B Voeding en Gezondheid
International name of the programme:	B Nutrition and Health
CROHO number:	56868
Level and orientation of the programme:	WO Bachelor
Number of credits:	180 EC
Location(s):	Wageningen
Mode(s) of study:	Fulltime
Language of instruction:	Dutch
Expiration of accreditation:	31/12/2019

Master's programme Nutrition and Health

Name of the programme:	M Nutrition and Health
CROHO number:	66868
Level and orientation of the programme:	WO Master
Number of credits:	120 EC
Specializations or tracks	
- offered on campus (full-time):	Epidemiology and Public Health Nutritional Physiology and Health Status Molecular Nutrition and Toxicology Sensory Science Food Digestion and Health
- offered online (part-time):	Nutritional Epidemiology and Public Health
Location(s):	Wageningen
Mode(s) of study:	Fulltime, part-time
Language of instruction:	English
Expiration of accreditation:	31/12/2019

The visit of the assessment panel Life Sciences to Nutrition and Health programmes of Wageningen University took place on the 12th and 13th of December 2018.

ADMINISTRATIVE DATA REGARDING THE INSTITUTION

Name of the institution:	Wageningen University
Status of the institution:	Publicly funded
Result institutional quality assurance assessment:	positive

COMPOSITION OF THE ASSESSMENT PANEL

The NVAO has approved the composition of the panel on 7 March 2018. The panel that assessed the bachelor's and master's programme Nutrition and Health consisted of:

- Prof. dr. S. (Stanley) Brul, professor Molecular Biology and Microbial Food Safety at the Universiteit van Amsterdam (UvA) and chair of the Dutch institute for Biology (NIBI) (chair);
- Dr. M. (Mieke) Latijnhouwers, assessment advisor at Radboud University Medical Centre Nijmegen, the Netherlands;
- Prof. dr. G. P. (Gerhard) Püschel, professor in Nutritional Biochemistry and since 2012 deputy director of the Institute of Nutritional Science in Potsdam (Germany);
- Prof. dr. L. (Loraine) Brennan, professor at the UCD Institute of Food and Health at the University College Dublin (Ireland). She is also director of the European Nutrigenomics Organisation (NuGO);
- M. (Marit) de Kort, graduated in 2017 in Biomedical Sciences at Utrecht University (UU). She is currently following a master's programme Cancer, Stem Cells en Developmental Biology at the UU.

The panel was supported by Dr. Meg van Bogaert, who acted as secretary.

WORKING METHOD OF THE ASSESSMENT PANEL

In preparation of the site visit, the panel studied several documents, amongst others: the NVAO assessment framework (2016), the institutional audit of Wageningen University and the previous programme assessments (of 2012). The accreditation system has entered its third phase (concurrently with a second round of institutional audits). Wageningen University has recently successfully passed its second institutional audit. The new NVAO assessment framework is 'geared to a quality assurance system that is based on trust in the existing, high quality of Dutch higher education'.

The most recent assessment of the programmes took place in 2012. In this assessment both programmes were assessed as "good" on standard 1, 2 and 3 and for the total programme. The panel was particularly impressed with the objectives and positioning of the programmes, the quantity, research quality and educational quality of teaching staff, facilities, the mixture of assessment methods and success rates. The panel assessed the curriculum of the bachelor's programme as good, but asked the programme to pay attention to coherency. The panel also formulated minor concerns with respect to the challenges with respect to further growth of the programmes.

With the new philosophy of the framework and the last assessment of these specific programmes in mind, the panel does not want to elaborate too much on the different criteria of the four standards of the limited framework. The overall evaluation of the programmes by this panel is, as it was in 2012, positive. In this report, therefore, the panel will concentrate specifically on developments since 2012 and on providing suggestions that might help to make the programmes even better than they already are.

QANU received the self-evaluation report of the Nutrition and Health programmes on 9 November 2018 and made it available to the panel. The panel members read the self-evaluation reports and prepared questions, comments and remarks prior to the site visit. The secretary collected these questions in a document and arranged them according to panel conversation and subject.

In addition, panel members read recent theses from each programme. In consultation with the chair, fifteen theses per programme were selected from the academic years 2015-2016 and 2016-2017, covering the full range of marks given and all specialisations. The panel members also received the

grades and the assessment forms filled out by the examiners and supervisors. An overview of all documents and theses reviewed by the panel is included in appendix 4.

The programme management drafted a programme for the site visit. This was discussed with the secretary and chair of the panel. As requested by QANU, the programme management carefully selected discussion partners. A schedule of the programme for the site visit is included in appendix 3.

Site visit

The site visit took place on 12 and 13 December 2018 at Wageningen University (WU). In a preparatory meeting on the first day of the site visit, the panel members discussed their findings based on the self-evaluation and on the theses and formulated the questions and issues to be raised in the interviews with representatives of the programme and other stakeholders.

During the site visit, the panel studied a selection of documents provided by the programme management. They included course descriptions, course materials, written exams, assignments and other assessments. The panel interviewed the programme management, students, alumni, staff members, members of the Programme Committee and members of the Examining Board.

Report

After the visit, the secretary produced a draft version of the report. She submitted the report to the panel members for comments. The secretary processed corrections, remarks and suggestions for improvement provided by the panel members to produce the revised draft report. This was then sent to WU to check for factual errors. The comments and suggestions provided by the programme management were discussed with the chair of the assessment panel and, where necessary, with the other panel members. After incorporating the panel's comments, the secretary compiled the final version of the report.

Definition of judgements standards

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

Generic quality

The quality that, in an international perspective, may reasonably be expected from a higher education Associate Degree, Bachelor's or Master's programme.

Unsatisfactory

The programme does not meet the generic quality standard and shows shortcomings with respect to multiple aspects of the standard.

Satisfactory

The programme meets the generic quality standard across its entire spectrum.

Good

The programme systematically surpasses the generic quality standard.

Excellent

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



SUMMARY JUDGEMENT

Standard 1

The bachelor's programme in Nutrition and Health aims at providing students with basic and advanced knowledge and understanding of different aspects of human nutrition. The programme covers a broad part of the discipline and includes a fundamental, theoretical basis necessary to understand the relation between nutrition and health. In the master's programme Nutrition and Health the knowledge and understanding is deepened. Students choose one of six specializations to become competent in one particular field within the domain. At the same time students are trained to look beyond their specialization to become multidisciplinary experts. Both programmes, but specifically visible in the master's programme, are research-oriented. According to the panel both programmes are unique from an international perspective, being one of the few programmes that cover the full breadth of disciplines related to Nutrition and Health at one university.

The ILOs clearly describe the focus on research, multidisciplinary approach and the focus on nutrition and health and are related to the Dublin descriptors. The ILOs for the master's programme are at a more advanced level with respect to knowledge, skills, attitude and academic level. Both programmes include a lot of electives, students can choose a tailor made programme that fits their interests and talents.

The link to the professional field is impressive. The External Advisory Committee (EAC) is intimately involved in not only discussing the ILOs and curriculum, but is also involved in the development of the programmes. The panel is also very positive about development of the part-time online specialization.

Standard 2

The bachelor's curriculum is common for all students for the first and second year. This common part consists of basic biology and chemistry courses, statistics and research methodology, a social sciences course, domain specific and integration courses, and general academic skills training. The panel thinks that the design is clear and provides good grounding in the basics of nutrition and health. The panel specifically mentions the *BSc Assessment course* as a best practice. Courses build upon competencies taught in preceding courses, which leads to learning tracks. The third year consists of a thesis and elective courses. The content of the courses the panel studied is appropriate and the learning goals are suitable and match the teaching methods used.

The master's curriculum consists of a common part of three common courses and five on campus specializations. Within each specialization course there are compulsory foundation courses, specialized courses and an elective with which students work on their T-shaped skills. Students have room for electives, write a thesis and do an academic internship. The panel is pleased with the structure of the curriculum that allows for both coherency and flexibility. The research-oriented internship fits the profile of the programme. The online part-time programme consists of two years of courses and two years to do the master's thesis and academic internship. The courses are relatively small (3 EC) and during these courses student virtually meet and collaborate. Students meet in Wageningen in year two for one week.

Student numbers have strongly increased and led to a *numerus fixus* of 180 students in the bachelor's programme. The panel does wonder if further increase of student numbers to 200 is feasible without quality loss. It urges the programme management to temper growth in order to maintain the high quality of the programme. The programme has been dealing well with the growth by introducing online learning, and making use of other measures like the electronic tool lab-buddy. Growth in the master's programme was also dealt with in a good way. By adding courses the number of students per course could remain the same.

In general the panel was positive about the teaching-learning environment with good facilities, a nice mix of teaching methods and a focus on activating students. Both programmes are feasible although



many students take more time, mainly because they lengthen their internship. Student supervision is good. The panel is overall pleased with the quantity and quality of the teaching staff. The panel strongly feels that staff numbers should reflect the growing student numbers. Lecturers are experts in their fields and most are able to combine research with teaching. Didactic skills are also considered important by the university and are appreciated by students. The panel points out that development and maintenance of digital teaching methods takes time and teaching staff should be provided with sufficient time for this.

Standard 3

Both programmes have developed a solid system of assessment, which is based on the WU-wide assessment policy. Sufficient attention is paid to the validity, reliability and transparency of examinations. The design of sample tests studied by the panel is adequate: the examinations sufficiently match the course specific learning goals and teaching methods. The level and content of the examinations is appropriate. A strong aspect is the variety of assessment methods within courses to assess the different learning outcomes adequately, specifically in the master's programme. In the bachelor's programme the number of exams using MC questions is considered to be high and should be looked into.

The procedures for assessing the final product of the programmes, the thesis, are clear and the assessment itself is sound. Chair Groups have the same rubric and standardized assessment form, but can set the weight of the different aspects. The Programme Committee is aware of the risk of differences in assessment by different Chair Groups and actively verifies this. The panel recommends to also appoint thesis coordinators per specialization, across Chair Groups. The panel noticed that not all sub-items are scored on the assessment forms, this requires attention. The same accounts for the sometimes very limited qualitative feedback on the assessment forms.

The panel established that the Examining Board safeguards the overall level of assessment in the programmes to the best of its abilities. Increasing the capacity of the EB, as is the intention of the Executive Board, could help to strengthen its agency in relation to the rather autonomous Chair Groups. Nonetheless, the panel feels that the central university should also critically reconsider whether the design of the current quality assurance system optimally suits its purposes.

Standard 4

The panel reviewed a sample of fifteen theses for both programmes and concludes that overall the quality is good. The weaker theses were graded accordingly and in general had conceptual weaknesses with respect to the research question. Strong theses were good in contextualizing, completed the empirical cycle very well and were exhaustive in their literature references. Graduates of the bachelor's programme enrol in a number of master's programmes, both within and outside Wageningen University. Master's graduates easily find employment in companies, industry or as PhD candidate. Alumni generally feel that the programme has provided them with a solid foundation from which they can benefit in their respective careers.

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

Bachelor's programme Nutrition and Health

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

Master's programme Nutrition and Health

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

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

Date: 14 March 2019

DESCRIPTION OF THE STANDARDS FROM THE ASSESSMENT FRAMEWORK FOR LIMITED PROGRAMME ASSESSMENTS

Governance structure of Wageningen University (WU)

In contrast to many other Dutch Universities, WU has just one faculty: the Faculty of Agricultural and Environmental Sciences. Therefore the governance structure of WU differs from most other universities. The Rector Magnificus of the University is also the Dean of the Faculty. The Dean of the Faculty appoints the Programme Board, which consists of four professors and four students. The Programme Board is the legal governing body of the university's 18 BSc and 28 MSc degree programmes. It is responsible for the design, content, quality and financing of the programmes. Each programme has its own Programme Committee, which consists of an equal number of students and staff members who are appointed by the Programme Board. Programme Committees advise the Programme Board on the design and content of their degree programmes. The Programme Board does not employ the lecturers; these are employed by the 94 Chair Groups, which generally include a Chair Holder (full professor), academic and support staff, postdocs and PhD students. The Programme Board, the Programme Committees and the Chair Groups together form the WU education matrix organization.

The Executive Board of WU has appointed four Examining Boards (EBs), each responsible for a group of related degree programmes (domain) and Chair Groups. Examining Boards are independent from the Programme Board and include staff members from the domain. The Examining Boards assess the individual study programmes of students and award student degrees. The Examining Boards also appoint the course examiners and monitor changes to the assessment strategy of interim examinations in the annual education modification cycle. The Examining Boards assure the quality of the interim examinations, and for that reason periodically visit Chair Groups to discuss the validity and reliability of the assessments.

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 Nutrition and Health bachelor's programme aims to provide students with basic and advanced knowledge and understanding of the different aspects of human nutrition. The programme studies nutrition from different perspectives, and equips students with a biomedical research-oriented approach to the relation between dietary intake and health, while also paying attention to the social aspects that influence this relation. The definition of human nutrition used in the bachelor's programme is relatively broad and covers more than just dietary requirements or nutritional status. Biochemistry, cell biology and human physiology provide the theoretical basis necessary to understand the relation between nutrition and health. Important research areas in the domain, as well as mechanisms underlying the effects of nutrition and bio-active components are part of the programme. Various research approaches are taught including observational research at the population level. The bachelor's programme furthermore focuses on the initial training of research attitude, which is a challenge as the result of increasing student numbers. According to the self-evaluation report the bachelor's programme is unique in the Netherlands in its combined focus on health and biomedical sciences. Parts of the programme align with Biomedical Sciences programmes. There are also similarities with Health Sciences. However, these other programmes have a less comprehensive view on the role of nutrition in the maintenance or restoration of human health.

In the master's programme Nutrition and Health, knowledge and understanding acquired in the bachelor's programme is deepened. Students specialize in one of six specializations to become



competent in that particular field within the domain: Epidemiology and Public Health, Nutritional Physiology and Health Status, Molecular Nutrition and Toxicology, Sensory Science, Nutrition Epidemiology and Public Health (online), and Food Digestion and Health. Students are required to both become competent in their own specialization but are also trained to look beyond just their specialization. Alongside the specializations, students can pursue a professional career preparation track. They can choose between a *Research track* and the *Academic Consultancy track*. The programme aims to equip students with a biomedical research-oriented approach to the relation between dietary intake and health while also paying attention to the relevant aspects of social and food science that influence this relation. The self-evaluation report also states that the master's programme is unique in the Netherlands in that it addresses the full domain of Nutrition sciences with links to e.g. Food sciences.

The panel is convinced by the research-oriented and multidisciplinary profile of both programmes. The research orientation is a key element, clearly visible and in-depth in the master's programme while the bachelor's programme focusses on the research attitude and more specifically on the broad, multidisciplinary aspects of the field of nutrition. In the master's programme the focus lies predominantly on research orientation and in-depth specialization, but there is ample attention to the multidisciplinary aspects of the discipline. Although – according to the panel – there are partial overlaps with other programmes at the international level, the full breadth of disciplines and domains involved in these programmes with specific focus on nutrition is remarkable. The research profile of the institute is well-known worldwide and the degree programmes are at the core of this institute. The panel concludes that both programmes are unique, not only in the Netherlands but also internationally, as they combine breadth and focussed depth while serving large student numbers. From an international perspective the programmes are among the few programmes in Europe that offer students the option to study Nutrition and Health covering (almost all) disciplines, at one university, in one programme.

Intended learning outcomes

The profile and objectives of the bachelor's and master's programmes in Nutrition and Health have been translated into two sets of intended learning outcomes (ILOs). Overviews of the ILOs can be found in appendix 1. The panel concludes that both sets of ILOs clearly reflect the focus on research, nutrition and health as well as the multidisciplinary orientation of the programmes. The ILOs are linked to the Dublin descriptors, which ensures that their level and orientation are suitable. The ILOs for the master's programme are clearly at a more advanced level with respect to knowledge, skills, attitude and academic level.

The self-evaluation report of the bachelor's programme claims to specifically value ILO 5, on students designing and planning their own learning path. This translates in the inclusion of a lot of electives that students can choose to design a tailor-made programme that fits their interests and talents. The panel is of the opinion that in a broad bachelor's programme such as this, which is predominantly focussing on orientation in the field and as preparation for a master's programme, the focus on individual learning paths is a logical choice and very well coordinated.

Link to the professional field

The bachelor's programme provides the competencies for further studies in Nutrition and related master's programmes. The programme management discusses the profile, ILOs and programme with the External Advisory Committee (EAC). The EAC has agreed with the main objective of the programme being to prepare students for academic master's programmes and not directly for the labour market. Although the panel understands that in the Netherlands most bachelor graduates continue with a master's programme, both in the student chapter and in the interview bachelor's students mentioned that they would appreciate more insight in future professions.

The profile of the master's programme as well as the ILOs and curriculum are also discussed with the EAC. The panel concludes that the EAC is intimately involved in the developments of the programmes. The programme management monitors what happens in related domains to keep the

profile up-to-date. There are two professional field accreditations applicable. For the whole programme the professional accreditation of 'Registered Nutritionist A' by the Dutch Academy of Nutritional Sciences (NAV) applies. This means that all graduates are eligible for registration after the master's programme. However, in the interview with students it became clear that many are not convinced of the added value in relation to the fee. Furthermore, for the specialization Epidemiology and Public Health and the part-time online specialization the registration as Epidemiologist A from the Netherlands Epidemiology Society is possible.

Part-time online specialization

The panel has some specific remarks about the Nutritional Epidemiology and Public Health specialization, which is delivered on-line and part-time. The panel is pleased by the decision and support of Wageningen University to provide this specialization that seems to be developed for employees in the professional field of Nutrition who want to obtain a university master's degree. The students the panel talked to were mostly new to the field and would have liked more attention of the programme to their perspectives in the labour market. The panel is of the opinion that the match between the expectations of the students and the objectives of the specialization requires some attention. Nevertheless, the panel is very positive regarding the steps that were taken in the first years and is of the opinion that the development of the part-time online specialization is going well.

Considerations

The panel concludes that both programmes are research-oriented and multidisciplinary. The bachelor's programme aims at providing students with broad knowledge and understanding of different aspects of human nutrition and on the initial training of research attitude. The master's programme focuses on deepening the knowledge in the chosen specialization and strongly focuses on a research orientation. Both programmes are unique in their breadth of combining disciplines within the domain and the research of the institute is known worldwide. The ILOs clearly reflect the focus on research, nutrition and health and multidisciplinary aspects at a bachelor's and master's level respectively. The link to the professional field is best visible in the master's programme, although the EAC is also focusing on the bachelor's programme. There are clear connections to the professional field and its input was taken into consideration when developing the current sets of ILOs. The panel is very positive about the development of the part-time online specialization.

Conclusion

Bachelor's programme Nutrition and Health: the panel assesses Standard 1 as 'excellent'.

Master's programme Nutrition and Health: the panel assesses Standard 1 as 'excellent'.

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 of the bachelor's programme

The ILOs of the programme have been translated into a three-year programme (180 EC) which is provided in appendix 2. The first two years are common for all students, except for a choice between two courses in the fourth period of the second year. The common part of the curriculum consists of basic biology and chemistry courses, statistics and research methodology courses, a social sciences course, domain specific and integration courses and general academic skills training courses.

In the first year, the programme strives at being selective and exploratory for students, including instruction in nutrition already from the start. This is continued in the second year. In the first year the programme also touches upon two related disciplines that link to other Wageningen University programmes, namely Food Technology and Health and Society. In September 2018, an update of the bachelor's programme was implemented. New courses were introduced to replace current



courses. Other courses were significantly updated. Reasons for the changes were multiple. One example is that the introductory course was not always evaluated well. Already in 2016 this course was split in a skills course and a redesigned introduction course, in which all different fields within nutrition science are introduced in an integrative approach. The third and final year is individually designed by students and consists of the bachelor Thesis (12 EC) and 48 EC of elective courses in which students can work on their T-shaped competencies by designing their own learning path. There is no completely free choice for the 48 EC, as students need to clearly motivate their choice, prove that the courses chosen are of sufficient level and not overlapping with existing mandatory courses in the curriculum and requires approval of the Examination Board. A course that deserves specific mentioning is the *BSc Assessment* that starts in the second year. In this course students start with an inward focus on their talents and interests after which an outward look is included that helps them decide which courses to select. After this, each student can have an individual meeting with the study adviser to discuss elective courses in the third year. Students and study advisers were very positive about this course, which helps students in defining their interest and choosing a path throughout the curriculum. The BSc thesis trajectory has changed over the years, for example by including a kick-off session.

Many courses in the programme build upon competencies taught in courses that precede them, which leads to learning tracks. Teaching staff informed the panel that they would like to see the academic skills training track made more explicit to the students. One of the three examples provided in the self-evaluation report shows the learning track on research methodology: The first steps are taken in the first period of year one when students formulate a research question. In a course in the next period students are introduced to the evidence pyramid, some of the study designs and how to measure dietary intake. Continuing via other courses, students learn about observational study designs, also in the context of analysing obtained results, and finally students perform their own nutrition intervention study.

The panel established that the programme design is clear and provides good grounding in the basics of nutrition and health. Not only does the panel appreciate the way the curriculum starts with courses to provide a fundamental knowledge base, it also appreciates the attention to domain specific nutrition and health related courses to keep an optimal context in which both knowledge aspects nurture students motivation. A number of positive aspects in the curriculum were observed by the panel, for example the good grounding in clinical trials, the research methodology courses and statistics. The panel also is of the opinion that relevant ethical issues are adequately covered. Some attention is required in the bachelor's programme with respect to student skills in critically assessing the method of choice for a given nutrition research challenge. For example, the "hands on a bench experiment time" in the programme is comparatively short, while the programme is very strong in their education on statistics. The panel furthermore was pleased to learn that the programme keeps up with developments in the field, which was demonstrated by the new course on human genetics that will be made mandatory in the second year as of 2019-2020. Although the bachelor's programme covers basic molecular biology in the first year, not the entire field of ~omics is covered. For example, experimental aspects are limited in the mandatory part of the curriculum. However, if students want to specialize in the molecular nutrition direction, they have to choose specific elective courses that cover the ~omics adequately. The panel is positive about the *BSc Assessment* course as an excellent measure that helps students in choosing the best individual learning path in the third year. The panel agrees with the study advisers and master's students that it would be even better if this course receives follow up in the third year and even in the master's programme.

Initially the panel had some hesitations with respect to the bachelor's thesis being a literature study and not including experimental work. However, the programme management was able to convince the panel that the choice for a small focussed bachelor's thesis (12 EC) does not allow for sufficient time to perform (even a small) nutritional trial. Instead the programme decided to have students perform in-depth academic analysis of existing (focussed) areas of nutritional research. Other courses adequately cover the experimental training, for example the *Research Methodology* courses include controlled nutrition intervention studies. Also, a number of elective courses cover relevant

aspects of experimental training. Some bachelor's students have 'thesis anxiety' because they are not comfortable with writing completely on their own, as writing elsewhere in the programme is done in group assignments.

During the site visit the panel studied a number of sample courses from the first and second year of the bachelor's programme, notably the first-year courses *Bio-organic Chemistry for Life Sciences*, *Nutrition and Health: Macronutrients, Energy and Health* and *Integrated Human Physiology* and the second year courses *Research Methodology for Nutrition and Health I and II*. Courses from the third year were not selected as these are all elective courses. However, the panel did have Blackboard access to many of these courses. The panel concludes that the level and content of these courses is appropriate. In *Research Methodology for Nutrition and Health I* students acquire the theoretical and practical tools to write a research protocol and nutritional intervention trial. In the follow-up *Research Methodology for Nutrition and Health II* course own nutritional research is being done and research questions are being answered. Students learn about Nutrigenomics approaches to study nutritional effects on humans 'top-down' using of state of the art tools and techniques including the analysis of relevant body fluids. Flanking courses in *Cell Biology and Health* and *Food and Health* as well as the *Research Methodology* courses themselves prepare students to critically deal with methodological aspects of the publications that underlie their bachelor thesis that must be written in the third year. Students told the panel that they think most courses are well structured. Learning goals of the courses are suitable and match the teaching methods used. A curriculum matrix shows that the programme as a whole covers all of the ILOs. Like the panel, students are positive about the content of the curriculum, which scored a 4.0/5 in the National Student Enquiry (NSE) of 2018. The bachelor's students particularly appreciate the flexibility of the programme and the good scientific basis that the programme provides.

Curriculum of the master's programme

The ILOs have been translated into a two-year programme which is provided in appendix 2. The curriculum consists of a common part and five on campus specializations. The common part is identical for all campus-based specializations and has three distinctive elements:

- The *Frontiers in Nutrition Science* course, which includes presentations from scientific staff on the state of the art research. These presentations are given throughout the first year. In small groups students write a research proposal on a topic outside the scope of their own specialization.
- The career preparing *Academic Master Cluster*, which is taken by all students. Most students select the General or Consultancy track, or the Research track. The *General or Consultancy Track* consists of the Academic Consultancy Training (ACT, 9 EC) in which students from different master's programmes are assigned a real-life project from a commissioner outside Wageningen University. In addition students follow a selection of *Modular Skills Training* (MOS, 3 EC) from a wide range of courses offered. In the research track students take the courses *Research Master Track: Proposal Writing* (12 EC).
- The *Academic Internship*, which is based on the individual learning path or on the preferred career track. Students can opt for a renowned research institute or industry.

Each of the five on-Campus specializations has a specific focus:

- A: Epidemiology and Public Health: students are prepared for a career in epidemiological research and health promotion, important is that they can interpret epidemiological research results.
- B: Nutritional Physiology and Health Status: The main focus is nutrition research through intervention studies with test subjects. Important is understanding of the human physiology.
- C: Molecular Nutrition and Toxicology: this specialization focuses on application of modern omics techniques to elucidate the molecular mechanisms of action of dietary nutrients and their impact on human health and metabolism.
- D: Sensory Science: this specialization includes a range of topics, both related to human biology and to food product being consumed. Offered in cooperation with the MSc Food Technology programme.



- E: Food Digestion and Health: this specialization is placed at the interface of Nutritional and Food sciences, with students being trained on food properties and the impact on digestion and absorption.

Within each of the five specializations there are foundation courses that are compulsory for all students in the specialization. All specializations furthermore are dealing with heterogeneity, not every student has the same background. To deal with this, students discuss their detailed background with the study adviser prior to the start of the programme and jointly decide on whether or not some of these courses (restricted optionals) are included in the individual programme. Although the panel is of the opinion that it is good that the programme deals with heterogeneity of the enrolling students, it is unclear to what extent these courses are also followed by bachelor's students and how that affects the level of these courses. In itself the panel does not object to bachelor's and master's students taking part in the same course, but it would prefer a differentiation in the learning goals and assessment of the course to assure that master's students are assessed at master's level.

In every specialization students select specialized courses, building or expanding on the foundation courses. Usually these specialized courses also are the courses that lead towards a thesis at one of the Chair Groups linked to the specialization. In addition to the specialized courses within the specialization, each student should select one course outside their own specialization to work on their T-shaped skills. Finally, students have some space in the programme for electives, students are required to motivate their electives based on the specialization chosen. The curriculum is finalized with a 36 EC thesis at one of the Chair Groups listed in their specialization. Students work individually on a subject, usually related to current research activities of the Chair Group, under daily supervision of a PhD student or postdoc and under responsibility of a staff member. The panel is enthusiastic about the thesis ring that is part of the thesis guidance in most Chair Groups. Not only does it support students in their thesis, but it also adds to their communication skills. The panel urges all Chair Groups to include the use of a thesis ring.

The panel has discussed the structure and coherence of the curriculum and is overall very pleased by the combination of common parts for all students, specialization courses and electives. The choice for one mandatory course for students of all specializations is a good idea and provides students with a broad understanding of the entire field. Although students have many options and flexibility to design their personal programme (which requires approval of the Examination Board), the panel concludes that the common focus of all specializations is nutrition. With respect to the different specializations, the panel notices that more mandatory specialized courses are good for the structure of the curriculum. However, the quality of the study advisers convinces the panel that students of all specializations are guided towards a coherent curriculum. Students convinced the panel that they not only specialize in one sub-discipline, but one of the major outcomes of the programme is that they also learn to communicate with and understand other disciplines within the broad field of Nutrition and Health.

Finally, the panel remarks that the research-oriented internship fits the profile of the programme. The students informed the panel that they feel well prepared to start the internship. The panel did notice that most students take more than four months to complete their internship. This is similar to many other master's programmes at Wageningen University and the main reason is the fact that many internship-providers prefer a six month internship. Students stated that many interesting internships are offered for the duration of six months. Although the panel understands the reasoning of students and programme, it is costly for both students and Wageningen University.

The panel also discussed the number of specializations offered by the programme. It learned during the site visit that adding more specializations to the programme is currently being discussed by the programme committee. Adding more specializations will add to the workload of the staff and the panel observes some friction between the ILO 'Students design and plan their own learning process' and more pre-set specializations. The panel agrees with the programme management that adding a specialization might help students to choose a certain direction, but doubts that the outside

(professional field) world has the need for additional specializations. The panel also thinks it is questionable whether new specializations can live up to the expectation that they are really “new and independent entities”. Despite this view of the panel on the number of specializations, it is convinced that the programme may well be capable of adding meaningful specializations in a careful manner, avoiding overlap and making them as good as the existing specializations. In this respect the panel was pleased to hear the programme director mention that Chair Groups should not each have ‘their’ specialization in order to maintain the multidisciplinary focus of the programme.

The online, part-time programme is a four-year programme which started in 2015. Years one and two consist of courses and years three and four consist of the master’s thesis and academic internship. This specialization focuses specifically on Nutritional Epidemiology and Public Health and is most closely related to specialization A: Epidemiology and Public Health. The curriculum for the online, part-time specialization was developed from the ground up which allowed the rationalization of course design. Courses of 3 EC run during two years in which students (virtual) meet and collaborate. In year two all students visit Wageningen for a week in which they work on their group project in real life, and use this week to meet with potential thesis supervisors. The mandatory Academic Master Cluster cannot easily be translated to an online-course, so a *Continuous Course* is developed containing academic skills training and project work in small teams. The programme combines a scientific approach with training on domain-specific skills in which students also do hands-on data analysis. The students the panel interviewed mentioned that the information about the curriculum was unclear prior to starting the programme.

The panel has discussed the set-up of the online, part-time specialization with staff and students and is of the opinion that it fits well within the objective of the programme. Students have to write a master’s thesis under supervision of a Wageningen University supervisor and the panel concludes that the specialization is sufficiently research-oriented to allow students to obtain the intended learning outcomes. Attention should be given to the technical feasibility of the on-line environment and to provide exhaustive program information to all prospective students, prior to their start. During the site visit the panel studied a number of sample courses from different specializations of the master’s programme, notably the specialization B course *Hidden Hunger: Micronutrient Deficiencies in Developing Countries*, the specialization C course *Practical Tools in Molecular Nutrition Research* and the specialization D course *Principles of Sensory Science*. Of the online specialization three courses were studied, namely *Evaluation of Public Health Interventions*, *Randomised Controlled Trials: design and analysis* and *Observational Designs and Assessment of Validity*. The panel concludes that the content of the courses is very good. Learning goals seem suitable and match the teaching methods used. A curriculum matrix shows that the programme as a whole, as well as all specializations cover the total of ILOs. Like the panel the students of the master’s programme are also positive about the content of the curriculum, which scored a 4.0/5 in the NSE. Specific strengths that were mentioned by students are the flexible planning in the programme and the personal attention of lectures and study advisers.

Student admission and student numbers

The increase in student numbers in the bachelor’s programme, which was already a point of attention during the previous evaluation, further increased to nearly 180 students in 2013. In 2014 a numerus fixus of 130 was introduced with an increase in number of places of 10 each year. After the introduction of the numerus fixus yearly enrolment varies between 130 and 150 students. In the interview with the programme management it was mentioned that the aim is to grow up to 200 students per year. Students who want to enrol are ranked on their high school grades for Biology and Chemistry, the outcomes of a motivation test (performed in Wageningen) and a validated skills test (BMAT) provided by Cambridge University. The panel is wondering if this BMAT test is appropriate as it is customized for Biomedical Sciences and does not contain the appropriate test items for a Nutrition and Health programme. Nevertheless, the panel concludes that the introduction and use of this BMAT test was done in a well-considered manner and is pleased by the fact that all students are beforehand informed about the value of the scores.



The panel is pleased with the introduction of the *numerus fixus*, but wonders if 200 is a number that is feasible without loss of quality. Wageningen University as a whole is experiencing growth and many programmes are currently dealing with accommodating and educating increasing numbers of students. The Wageningen approach in which students from different programmes can enrol in the same course is valued by the panel, but at the same time adds to the challenges. One of the first year courses has to deal with approximately 900 students per year. From the interview with teaching staff the panel concluded that workload is high and although increasing student numbers now results in increasing numbers of staff members, it takes time to find and train these new staff members. The panel acknowledges the ambition to grow, but misses a sense of urgency with respect to the challenges that come with this growth. It therefore urges the programme and university to temper growth in order to maintain the high quality of the programme.

Despite this comment, the panel is of the opinion that until now the bachelor's programme has dealt well with the growth. For example, the panel learned that the programme is experimenting with online learning and gradually introduces more (parts of) courses digitally to provide fundamental knowledge and understanding and using a flipped-classroom approach. The programme also makes use of the electronic tool *lab-buddy*. The panel was very sorry to learn that the participation in *team 1* was terminated for one of the courses while the course coordinator would have wanted to continue. This *team 1* consists of a number of lecturers who – across Chair Groups, courses and programmes – participate in teaching activities to deal with peak-load as a result of the large student numbers. The panel urges Wageningen University to look for ways that allow Chair Groups from various departments of the university to keep on sharing initiatives like *team 1*. Moreover, this approach should be open to chair groups of all sizes.

The master's programme also experienced growth during the evaluation period, which was mainly accommodated by course innovation, an increase of the number of courses and adding of a specialization. The increase of student numbers in each course is therefore less pronounced. In the self-evaluation report it is stated that the introduction of *numerus fixus* in the bachelor's programme and a slightly more selective admission policy has a limiting effect on the increase in student numbers. The panel agrees that the increasing student numbers in the master's programme are less of an issue and that master's students still manage to find a thesis topic.

Teaching-learning environment

The panel was shown around the facilities that are used by students in their education. It was impressed by the facilities that were available to introduce students into human intervention studies. In addition to the facilities of the Nutrition and Health programmes, the Food Technology facilities are in the building next door and include impressive lab-space available to students to do the required lab-bench work. The combined facilities makes it even more of a strength. For the online master's specialization an online learning environment is used in all courses. More generally, for the recording of knowledge clips the programmes have developed their own concept, train lecturers accordingly and have built a knowledge clip studio in Wageningen. In both programmes a mix of teaching methods is used and although combinations in each course differ, all use a mix of teaching methods. The Wageningen University strategy is to activate students and this has led to changes in teaching in a number of courses over the past period. Time spent in class is predominantly used for discussion and reflection. Upfront lecturing in a number of courses is replaced by knowledge clips. An example of a MOOC on Macronutrients is given that replaces the textbook and part of the lectures. The remaining lectures are now used for reflection on the content. In addition to these changed teaching methods, the programme continues to use (lab)practicals, group work and tutorials. As mentioned before in this report, the panel is pleased with the changes in teaching methods and the focus on activating students.

According to the panel, the programmes both are feasible within the time set, the panel did not encounter any problematic courses. Many students do take more time, this has often to do with acquiring additional knowledge and an extension of the thesis or internship. The panel considers that this might be beneficial for the students, but adds to the workload of staff in the programmes.

Students stated in the interview with the panel that lecturers are very approachable and helpful in case of questions. Furthermore, students are guided by a total of five study advisers. The panel talked to a number of them during the site visit and was impressed by the dedication and quality of the study advisers. Students mentioned that they appreciate if they can continue their guidance by the same advisor. The continuation of these advisers is recommended.

Teaching staff

The bachelor's programme listed 34 staff members involved in teaching the compulsory and restricted optional courses. For the master's programme approximately 70 staff members are mentioned in the self-evaluation report. All but two of these staff members have a PhD. In addition to these staff members, many tutors, practical training supervisors and stand-in teachers are involved in day-to-day teaching. The student-staff ratio for the master's programme is 18:1, which the panel considers appropriate for a master's programme. Although the increase in bachelor's student numbers resulted in recruitment of more staff by the Chair Groups involved, the student staff ratio increased to 16:1 for the bachelor's programme. However, this ratio is difficult to evaluate as in some courses student numbers from other programmes participate and student of this programme participate in courses of other programmes. The panel considers that this ratio is adequate, but with the high number of contact hours in relatively small groups, the workload for staff is high. The panel is pleased to notice that the bachelor's programme is actively working on dealing with this high workload for lecturers. For example, the use of student-assistants seems to work well.

The panel is overall very pleased with the quality of the teaching staff. Lecturers are experts in their fields and most are able to combine their research with teaching. The content of the courses is very current and the panel is impressed by the level of the teaching staff in this respect. The panel thinks it is a very positive aspect that nearly all teaching staff have a research appointment. This appointment sometimes is small and sometimes focuses on research on teaching, but nevertheless it is important that staff members combine the two. Staff members involved in the five chair groups within the division of Human Nutrition have a regular informal meeting in which they discuss research and education.

The panel notes that didactic skills are considered important and lectures are given sufficient opportunities to obtain a University Teaching Qualification (UTQ) and/or other qualifications that benefit their teaching. In the interviews with students it became clear that students are pleased with the didactic qualities of teaching staff. In the NSE report the quality of teaching staff is scored 3.9/5 for both programmes. Students furthermore mentioned that improvements that are suggested are usually implemented into the programme and – similar to the results of the evaluations – are transparent.

Lecturing staff was positive about the support they receive in developing new teaching methods and in updating their courses. The panel is of the opinion that the teaching methods are indeed of high quality. It wants to emphasize to the programme management and Wageningen University that the development of new teaching methods, specifically online-modules and lectures takes a lot of time; in making, but also in maintaining. Teaching staff should receive adequate time for this to keep up the high quality as most of the work so far seems to have been done in spare time. The panel would like to invite the programme management to reflect on the way forward for future sustainability of the online-modules.

Considerations

The panel concludes that both programmes are well thought-out and structured and any concerns it expresses in this report are minor. The curriculum, teaching-learning environment and staff of the Nutrition and Health programmes clearly enable students to realize the ILOs. Both curricula are well structured and designed and are sufficiently coherent. The curricula offer students a lot of freedom in designing their own individual study path while at the same time there is a lot of attention to multidisciplinary aspects. Both curricula are research-oriented (specifically that of the master's



programme) and provide courses that cover the full breadth of the domain. The programmes are continuously working on further improvement of the curricula. In the bachelor's programme the panel is positive about the thorough fundamental knowledge base that is provided. The panel considers the *BSc Assessment Course* a best practice. Possible minor improvements for the bachelor's programme include more attention to a method-critical approach and covering of the full ~omics field. With respect to the master's programme the panel appreciates the common focus on nutrition and the common mandatory courses, both link the specializations to each other. Furthermore, the renowned research qualities are transferred to the programme. Minor points of attention are the combination of bachelor's and master's students in the courses that deal with heterogeneity and the length of the internship.

Student numbers have been increasing, which led to a *numerus fixus* in the bachelor's programme. Overall, the panel is of the opinion that until now both programmes are dealing adequately with increasing student numbers, but points out that it should also be sustainable. The panel established that the downsides of growth are a WU-wide concern.

The teaching-learning environment of the programmes is very good. There is an adequate number of contact hours and teaching methods are varied. In most courses students are activated rather than that they just listen to lectures. The programmes are increasingly using digital teaching methods and are supported in this by the university. The facilities are very good, many labs are available to students. Teaching staff is very approachable and the study advisers are dedicated and provide good guidance.

The teaching staff of the programmes are motivated and qualified. Lecturers are experts in their fields. The increasing workload of staff members requires intensive monitoring. The panel strongly feels that staff numbers should reflect the growing student numbers.

Conclusion

Bachelor's programme Nutrition and Health: the panel assesses Standard 2 as 'good'.

Master's programme Nutrition and Health: the panel assesses Standard 2 as 'good'.

Standard 3: Student assessment

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

Findings

System of assessment

The panel established that Wageningen University (WU) has a sound assessment policy. In 2017, WU renewed its vision on education alongside its education assessment policy. This assessment policy defines why and how the university assesses and how the roles and responsibilities are distributed. Its goal is to generalise assessment rules and policies and to make them transparent to both lecturers and students.

The system of assessment that is in use within the Nutrition and Health bachelor's and master's programmes takes the WU policy as a starting point. In order to have students not only study to pass the interim exam, learning is assisted by proper assessment and a mix of assessment methods is used in most courses. To ensure that tests are valid, an assessment strategy is drawn up for each course, linking the course specific learning outcomes to assessment methods. The WU Study Handbook provides an overview of assessment methods for each course and the course guide provides the assessment methods in a matrix with the course learning outcomes. Providing feedback to the students is considered important and an important addition to summative grading. In the bachelor's programme practicals often have a report as part of the assessments, while other courses have group or individual assignments or papers. Most courses conclude with a written interim examination, often a mix of closed and open questions. In the *Introduction to the Field of Nutrition*

and Health and in *Basic Skills* courses students also rate their fellow group members, which is part of the final grade. In some other courses group work is presented in a written and/ or orally presented product. For the master's programme the *Practical Tools in Molecular Nutrition Research* course is given as an example of mixed assessment methods: lab performance (20%, individual), teamwork (10%, group), quality of the online Lab journal (10%, group), written report (40%, group), take home exam on research competence (20%, individual).

The panel looked at the matrix in which the assessment methods of each course are provided in relation to the ILOs. In the bachelor's programme an appropriate mixture of assessment methods is used. Also in the master's programme a lot of variation is observed. The widespread use of rubrics, also in course assignments, is considered a very positive aspect, specifically with many Chair Groups being involved. The panel also reviewed a (limited) number of exams and is of the opinion that the quality of the bachelor's exams is appropriate, it observed average as well as good exams. With respect to the master's exams the quality was high. This was reflected in open questions being, in Bloom's taxonomy, at a higher level of cognitive thinking .

In the interview with bachelor's students the panel heard that many writing assignments are group assignments. The assessment is done appropriately; where it fits the assignment and learning goals, the contribution of individual students is taken into account in the scores. Students are also asked to provide peer feedback, which is part of the final score. Students mentioned that although they appreciate these assignments, some feel that they have insufficient experience in individual writing to start with confidence on their thesis. The panel suggests to pay attention to this aspect. Students did mention that the kick-off meeting on how to find a thesis topic and write a thesis is helpful.

Students of the bachelor's programme are critical about the number of multiple choice (MC) exams. Students feel that these MC exams do not sufficiently assess the application of knowledge. The panel noticed that some exams had a large number of true/false formats which tend to measure reproduction of factual knowledge rather than comprehension. Although the panel is of the opinion that a good MC question can assess much more than the replication of facts, it understands the students point of view that they prefer open questions as these reflect better what will be asked from them later in their professional life. The panel recommends that the bachelor's programme looks into this issue to assure that multiple choice examination is done purposely rather than primarily out of necessity given high student numbers.

Thesis assessment

For the assessment of the bachelor's thesis a standardized thesis assessment form and rubric are used by all supervisors. In addition to the written report (30-60%) and research competences (30-60%) that are being assessed, students perform an oral presentation on their thesis (weight 5%) and have a final interview (5%). The panel is pleased that the oral presentation of the thesis is added to the assessment, this part was indeed lacking in earlier theses. The thesis is assessed by the supervisor and usually a second, independent reviewer. A relative large number of Chair Groups in different Science groups offer students a topic for the bachelor's thesis. The master's thesis is a scientific research project that is part of ongoing research of a Chair Group. In addition to research competence the assessment consists of a report, an oral presentation and an oral defence. For the assessment of the master's thesis the standard Wageningen MSc Thesis Assessment form is used. Many supervisors use the rubrics for assessment as a guideline to ensure transparency, validity and reliability. Chair Groups can set the weight of the four aspects to reflect the relative importance of for example practical skills.

The procedures between Chair Groups differ slightly and the PC regularly checks the grade distribution between Chair Groups and conclude that at this moment grading is done fairly, but needs to be periodically monitored. The panel is pleased to learn that the programmes are aware of possible differences between Chair Group assessments and is regularly checking this. In the master's programme the alignment and calibration of thesis assessment is done at the level of the Chair Group. Although this is useful, the panel would like to recommend to also appoint thesis coordinators



at the level of the specialization, across Chair Groups. The panel noticed that thesis assessment forms overall contained two signatures. At the same time the panel noticed that not all sub-items were assessed on the forms. This made it very difficult for the panel to verify the assessment. Some thesis assessment forms contained valuable qualitative feedback in addition to the scores. The panel did notice that many lacked feedback or had very limited written feedback. Although students might have received oral feedback, both on the scores for sub-items and qualitative feedback, the panel is of the opinion that this aspect requires attention.

Assessment of the academic Internship

The academic internship is done outside Wageningen University, the host organization and the internship project have to meet the academic criteria requested by the university. This means that a staff member from a Chair Group is always involved in the supervision and is responsible for the assessment. The university supervisor receives the internship report which includes a self-reflection. The Wageningen University supervisor will contact the local supervisor for an advice on the final grade including motivation. The panel is of the opinion that this procedure safeguards the Wageningen requirements with respect to assessment. The panel is of the opinion that the internships are very valuable to the students development.

Examining Board

At WU there are four Examining Boards (EBs), each responsible for the assurance of quality of examination of a group of related degree programmes. The Executive Board appoints EB members and at least one member is independent (not affiliated to the programmes). For each course a member of the lecturing staff is appointed as examiner by the responsible EB. The examiner is responsible for the assessment strategy of the course.

Part of the responsibilities of the EB is to check whether the individual study programmes of students (which can vary widely because of the many different specializations and ample elective space) cover all of the ILOs, thereby assuring that students have achieved the intended end level upon graduation. The panel is convinced that the EB does this to its best ability. To ensure the quality of assessment, the EB periodically visits the Chair Groups that are involved in the teaching. Prior to these visits, which generally take place every four years, a delegation of EB members accompanied by an external assessment expert checks a sample of theses and internship assessments, as well as course assessment strategies whose validity, reliability and transparency they later discuss with representatives of the Chair Groups. Where necessary, the EB proposes improvements.

Although the panel has no particular reasons for concern with respect to the quality of assessment in the Nutrition and Health programmes, it does note that the current university-wide system of quality assurance poses some challenges. To start with, there is considerable distance between the EB and the Chair Groups, which operate with a large measure of autonomy. The limited means that were available to the EBs over the reporting period meant that these may have lacked agency in properly streamlining procedures across Chair Groups and following up on prior recommendations. An additional issue for WU to consider is that the current system does not seem to allow for taking a snapshot of the assessment quality in a certain programme at a certain moment. Programmes such as those in Nutrition and Health rely on a large number of Chair Groups, which are all visited at different times and (often) by different Examining Boards. The panel was very pleased to learn that the Executive Board of WU is doubling the resources for Chair Groups as of 2019. Even so, it does advise the university to carefully consider how these resources can be used to their optimal effect.

Considerations

Both programmes have developed a solid system of assessment, which is based on the WU-wide assessment policy. Sufficient attention is paid to the validity, reliability and transparency of examinations. The design of sample tests studied by the panel is adequate: the examinations sufficiently match the course specific learning goals and teaching methods. The level and content of the examinations is appropriate. A strong aspect is the variety of assessment methods within courses

to assess the different learning outcomes adequately, specifically in the master's programme. In the bachelor's programme the number of exams using MC questions is considered to be high and should be looked into.

The procedures for assessing the final product of the programmes, the thesis, are clear and the assessment itself is sound. Chair Groups have the same rubric and standardized assessment form, but can set the weight of the different aspects. The Programme Committee is aware of the risk of differences in assessment by different Chair Groups and actively verifies this. The panel recommends to also appoint thesis coordinators per specialization, across Chair Groups. The panel noticed that not all sub-items are scored on the assessment forms, this requires attention. The same accounts for the sometimes very limited qualitative feedback on the assessment forms.

Finally, the panel established that the Examining Board safeguards the overall level of assessment in the programmes to the best of its abilities. Increasing the capacity of the EB, as is the intention of the Executive Board, could help to strengthen its agency in relation to the rather autonomous Chair Groups. Nonetheless, the panel feels that the central university should also critically reconsider whether the design of the current quality assurance system optimally suits its purposes.

Conclusion

Bachelor's programme Nutrition and Health: the panel assesses Standard 3 as 'satisfactory'.

Master's programme Nutrition and Health: the panel assesses Standard 3 as 'satisfactory'.

Standard 4: Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.

Findings

To review the achieved ILOs the panel studied documents like course manuals, fifteen theses for each programme and it spoke to alumni of the programmes.

Theses

The panel accepts the decision by the programme to make the bachelor's thesis a literature thesis without practical work. This means that the ILOs with respect to practical work are not covered in the thesis and the panel looked in-depth to a number of courses that are covering these ILOs, like *Research Methodology*. Students acquire basic laboratory skills in the mandatory courses, while more specialized skills are taught in elective courses and the panel concludes that the students fulfil the ILOs. Prior to the site visit, the panel studied a sample of fifteen recently completed bachelor's theses. The panel was generally very satisfied with the level and content of these theses. The panel overall agreed with the grading by the thesis supervisors and only on one occasion deviated in its grading with more than one grade. One of the weaker theses, which received a low, but passing grade, failed to sufficiently explain the underlying hypothesis and instead provided rather isolated bits of information. Other weaker theses had English grammar and style issues as well as conceptual weaknesses in posing the research question. The best thesis (outstanding) was incredibly comprehensive and of high scientific quality. Other strong theses completed the empirical cycle very well and were generally exhaustive in their literature references. With only 12 EC the bachelor's thesis is a small part of the total programme and covers only a short period. The panel thinks this reflects the position of a bachelor's degree in the Dutch professional field, which is predominantly a preparatory programme for a master's degree.

The panel also studied fifteen master's theses prior to the site visit and its conclusions are similar to the bachelor's theses. The panel overall agreed with the grading and concluded that the level of the master's theses is at a higher level compared to the bachelor's theses. The main difference with the bachelor's thesis is that the master's thesis includes hands-on experience practical work, although compared to other institutions the extent of experimental work is limited. However, given the variety of specializations this is not to be expected in all cases. The panel is of the opinion that the literature



parts of the weaker master's theses was limited to the introduction and discussion; in this respect a number of master's theses only just rise above the level of many bachelor's theses. These theses lacked in-depth discussion on literature and barely managed to complete the empirical cycle. The good master's theses were all very strong in contextualizing the studies that were described. The general conclusion is the different purpose of the master's theses is clear with hands on experience, writing of protocols and a research proposal. The panel concludes that the objective to generate research-oriented graduates is very well achieved.

Position of graduates

The position of graduates after completion of the programmes underlines that the students achieve the ILOs. Bachelor's students told the panel that the *BSc Assessment Course* helps them in their preparation for the future, the same accounts for the discussions they have with study advisers on opportunities. Approximately 67% of the bachelor graduates continue in the master's programme Nutrition and Health and 17% in other master's programmes at Wageningen University. About 12% chooses to continue in a master's programme elsewhere in the Netherlands. The study association organizes activities twice a year and invites speakers from industry and companies to provide information on their position. There are also excursions organized to companies, but bachelor's students stated that they would prefer even more excursions and contact with the professional field.

Master's graduates find employment in companies and industry and approximately 40% pursues a PhD after graduation. The panel was pleased to learn that the performance of master's graduates is good, they are well respected and internationally considered to be of high quality. However, not all students felt confident about their future opportunities as they were uncertain about the opportunities. According to the panel there is some room for improvement in this respect, there might be an opportunity to connect with alumni to help students orientate on the job market.

Considerations

Both the sample theses that were studied by the panel and the position of graduates indicate that students achieve the intended learning outcomes of the programmes. The general level of the thesis is good, with some theses being satisfactory and others being of very high quality. Graduates of the bachelor's programme are successful in associated master's programmes, while graduates of the master's programme find employment in relevant positions at companies, and as PhD candidates. Alumni generally feel that the programme has provided them with a solid foundation from which they can benefit in their respective careers.

Conclusion

Bachelor's programme Nutrition and Health: the panel assesses Standard 4 as 'good'.

Master's programme Nutrition and Health: the panel assesses Standard 4 as 'good'.

GENERAL CONCLUSION

Conclusion

The panel assesses the *bachelor's programme Nutrition and Health* as 'good'.

The panel assesses the *master's programme Nutrition and Health* as 'good'.

APPENDICES

APPENDIX 1: INTENDED LEARNING OUTCOMES

Bachelor's programme Nutrition and Health

After successful completion of this BSc programme graduates are expected to be able to:

1. 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;
2. demonstrate understanding of basic food and nutrition concepts;
3. demonstrate understanding of the individual and environmental determinants of nutrition behaviour;
4. judge scientific research publications in the domain of nutrition and health by critically reflecting on scientific research design, methodology and results;
5. choose and carry out appropriate (statistical) data analysis and interpret the results (under supervision);
6. write and conduct a (literature) research plan in the field of nutrition and health and report the results in a scientific manner (under supervision);
7. apply domain specific laboratory techniques and interpret the results (under supervision);
8. apply nutritional assessment methods commonly used in nutrition research at individual human level and interpret the results (under supervision);
9. make judgements (under supervision) based on social and ethical issues that arise in work on or study of human nutrition;
10. co-operate in a team of students to achieve specific targets within courses, e.g. writing reports or solving problems;
11. communicate (verbally and in writing) the outcomes of learning, ideas, problems and solutions to both specialist and non-specialist audiences;
12. design and plan their own learning path based on reflection on personal knowledge, skills and performance.

Master's programme Nutrition and Health

After successful completion of this MSc programme graduates are expected to be able to:

1. 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;
2. understand concepts on the role of nutrition on human health and disease at the population, individual and cellular level;
3. 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;
4. design a research plan within the topics of the chosen specialization and critically reflect (under supervision) on the phases of the scientific research process;
5. 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;
6. 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;
7. respond to social and ethical issues that arise in work on or study of human nutrition;
8. co-operate as a specialist in a multidisciplinary team to solve more complex problems;
9. communicate project outcomes, rationale, and methods convincingly, to specialists and non-specialists using appropriate techniques;
10. design and plan their own learning process based on evaluation of personal knowledge, skills, attitudes and performance.



APPENDIX 2: OVERVIEW OF THE CURRICULUM

Bachelor's programme Nutrition and Health

	Period 1		Period 2		Period 3		Period 4		Period 5		Period 6	
Year 1	Bio-organic chemistry for the Life Sciences	Introduction to the field of Nutrition and Health	Cell Biology	Macronutrients, Energy and Health	Principles of Human Physiology	General Chemistry for the Life Sciences	Metabolic Aspects of Nutrition	Social Psychology	Nutritional Aspects of Foods	Microbiology and Biochemistry for Nutrition and Health		
	Statistics 1	Basic Skills for BSc Nutrition and Health										
Year 2	Integrated Human Physiology	Introduction Epidemiology and Public Health	Advanced Statistics for Nutritionists	Nutrition Behaviour	Pharmacology and Nutrition	Practical Biological Chemistry or Applied Data Analysis	Cell Biology and Health	Research Methodology for Nutrition and Health I	Food and Health	Research Methodology for Nutrition and Health II		
	General Toxicology											
BSc Assessment												
optionals: lectures and excursions / European Excursion												
Minor and optional courses (48 credits)												
BSc Thesis Nutrition and Health (12 credits)												
Year 3												

Legend:

	basic biology & chemistry courses
	statistics and research methodology
	social sciences
	domain specific and integrating courses
	general academic skills training courses

Master's programme Nutrition and Health

Within our programme, the first half (year 1 oncampus, year1+2 online) are generally filled with coursework, while the second half (year 2 oncampus, year 3+4 online) are used for thesis and internships.

Our programme has a common part and 6 specializations, of which specialization E is offered part-time and online.

Our programme is listed below.

Common Part

This common part is not applicable for specialization E.

Choose 1 cluster from RO-1 - RO-3; take into account:

- YMC-6 0300 is an 'umbrella' code. Instead, choose and register for 3 credits worth of modular skills (MOS) courses. For an overview of possible MOS courses please see under YMC-60300 in the study handbook.
- RO-1: If RO-1 is selected, choose 1 course from RO-1A.
- RO-2: If RO-2 is selected, choose 1 course from RO-2A. NOTE: RO-2 can only be selected by those students that meet the professional competencies from YMC-60809 based on prior education and/or professional career, to be decided by the MNH-programme-team.
- RO-3: YEI-60312 has specific prerequisites.
- RO-4: In consultation with the study adviser, students either choose an internship or a second thesis of at least 24 credits from the chairgroups HNE, HAP, TOX, CPT or CBI.

In general students with a professional Bachelor degree should opt for a second thesis. Students with an academic Bachelor degree should opt for an internship.

The FQD internship is linked to specialization D only.

Course	Ects	CS/RO	Year	Period	
YNH-30302	Frontiers in Nutrition Science	2	CS	M1/2	Year-round
YMC-60809	Academic Consultancy Training	9	RO1	M1	Possible every period
YMC-60300	Modular Skills Training	3	RO1A	M1	Possible every period
CPT-38803	Ethics of Food and Nutrition	3	RO1A	M1	2AF, 6AF
CPT-39303	Science Communication 2.0	3	RO1A	M1	6AF
YMC-61303	Scientific Skills Training	3	RO2	M1	1MO
YMC-60300	Modular Skills Training	3	RO2A	M1	Possible every period
CPT-38803	Ethics of Food and Nutrition	3	RO2A	M1	2AF, 6AF
CPT-39303	Science Communication 2.0	3	RO2A	M1	6AF
YEI-60312	Research Master Cluster: Proposal Writing	12	RO3	M1/2	Possible every period
CBI-70424	MSc Internship Cell Biology and Immunology	24	RO4	M1/2	Possible every period
CPT-70824	MSc Internship Knowledge, Technology and Innovation	24	RO4	M1/2	Possible every period
CPT-71324	MSc Internship Strategic Communication	24	RO4	M1/2	Possible every period
FQD-70424	MSc Internship Food Quality and Design	24	RO4	M1/2	Possible every period
HAP-70424	MSc Internship Human and Animal Physiology	24	RO4	M1/2	Possible every period
HNE-71024	MSc Internship Nutrition and Pharmacology	24	RO4	M1/2	Possible every period
HNE-72424	MSc Internship Nutrition, Metabolism and Genomics	24	RO4	M1/2	Possible every period
HNE-73824	MSc Internship Sensory Science and Eating Behaviour	24	RO4	M1/2	Possible every period
HNE-74824	MSc Internship Nutrition and Disease	24	RO4	M1/2	Possible every period
HNE-75324	MSc Internship Nutrition and Health over the Lifecourse	24	RO4	M1/2	Possible every period
TOX-70424	MSc Internship Toxicology	24	RO4	M1/2	Possible every period



Specialization A: Epidemiology and Public Health

Students should have successfully completed the selected RO0-courses and mandatory prerequisites before they can start with their first thesis or internship.

RO-0: Select all of the courses that lack in your prior education in consultation with your study adviser.

RO-1: Choose at least 2 courses from RO-1. Choose all those courses that match your track within this specialization, in consultation with and through approval by your study adviser. Take also into account the thesis requirements when selecting RO1 courses.

RO-2: Choose at least 1 course.

RO-3: Choose 1 thesis.

RO-4: Choose HNE-38802 when doing an epidemiological thesis in Wageningen.

IMPORTANT NOTE: if you want to pursue a registration as 'Registered Epidemiologist A' with the Netherlands Society for Epidemiology, please discuss this with your study adviser as not all choices made in this specialization do qualify for this professional registration.

Course	Ects	CS/RO	Year	Period
HNE-37306 Applied Data Analysis (in Human Nutrition and Health Research)	6	CS	M1	4WD
HNE-24806 Introduction to Epidemiology and Public Health	6	RO0	M1	1AF
MAT-14303 Basic Statistics	3	RO0	M1	1MO
HNE-24306 Methodology Nutrition Research	6	RO0	M1	2AF
MAT-24306 Advanced Statistics for Nutritionists	6	RO0	M1	2MO
HNE-26806 Introduction to Global Nutrition and Health	6	RO1	M1	1MO
HNE-31006 Study Design and Interpretation in Epidemiology and Public Health	6	RO1	M1	3WD
CPT-39506 Public Health Practice	6	RO1	M1	5AF
HNE-32806 Exposure Assessment in Nutrition and Health Research	6	RO1	M1	5MO
HNE-33306 Public Health Nutrition: Development of Nutrition Intervention Programmes	6	RO1	M1	6AF
HNE-30806 Analytical Epidemiology	6	RO1	M1	6MO
HNE-36406 Monitoring, Evaluation and Impact Assessment of Food and Nutrition Programmes	6	RO1	M1	6WD
HNE-30506 Principles of Sensory Science	6	RO2	M1/2	1AF
HAP-31806 Molecular Regulation of Health and Disease	6	RO2	M1/2	1MO
HNE-37806 Nutrition and Cancer	6	RO2	M1/2	1MO
HNE-31206 Immunometabolism	6	RO2	M1/2	2AF
HNE-32106 Nutrition and cardiometabolic diseases	6	RO2	M1/2	2AF
HAP-30306 Nutritional Physiology	6	RO2	M1/2	2MO
HNE-27806 General Medicine	6	RO2	M1/2	4WD
TOX-30306 Food Toxicology	6	RO2	M1/2	4WD
HNE-32306 Clinical Nutrition Research	6	RO2	M1/2	5AF
HNE-39806 Hidden Hunger: Micronutrient Deficiencies in Developing Countries	6	RO2	M1/2	5AF
CPT-32306 Behavioural Interventions for Health	6	RO2	M1/2	5MO
HNE-30306 Psychobiology of Food Choice and Eating Behaviour	6	RO2	M1/2	5MO
HNE-36806 Nutrition and Sports	6	RO2	M1/2	5MO
HNE-37506 Metabolic Consequences of Chronic Diseases with Muscle Wasting; Nutritional and Pharmacological Intervention	6	RO2	M1/2	6MO
CPT-81336 MSc Thesis Strategic Communication	36	RO3	M2	Possible every period
HNE-84836 MSc Thesis Nutrition and Disease	36	RO3	M2	Possible every period
HNE-85336 MSc Thesis Nutrition and Health over the Lifecourse	36	RO3	M2	Possible every period
HNE-38802 Concepts and Methods in Epidemiology	2	RO4	M2	Year Round

Specialization B: Nutritional Physiology and Health Status

Students should have successfully completed the selected RO0-courses and mandatory prerequisites before they can start with their first thesis or internship.

RO-0: Select all of the courses that lack in your prior education in consultation with your study adviser.

RO-1: Choose at least 2 courses. Take into account the thesis prerequisites.

RO-2: Choose at least 1 course.

RO-3: Choose 1 thesis.

Course	Ects	CS/RO	Year	Period	
HAP-30306	Nutritional Physiology	6	CS	M1	2MO
HNE-37306	Applied Data Analysis (in Human Nutrition and Health Research)	6	CS	M1	4WD
HNE-24806	Introduction to Epidemiology and Public Health	6	RO0	M1	1AF
MAT-14303	Basic Statistics	3	RO0	M1	1MO
HNE-24306	Methodology Nutrition Research	6	RO0	M1	2AF
MAT-24306	Advanced Statistics for Nutritionists	6	RO0	M1	3WD
HNE-30506	Principles of Sensory Science	6	RO1	M1	1AF
HNE-32306	Clinical Nutrition Research	6	RO1	M1	5AF
HNE-39806	Hidden Hunger: Micronutrient Deficiencies in Developing Countries	6	RO1	M1	5AF
HNE-30306	Psychobiology of Food Choice and Eating Behaviour	6	RO1	M1	5MO
HNE-32806	Exposure Assessment in Nutrition and Health Research	6	RO1	M1	5MO
HNE-36806	Nutrition and Sports	6	RO1	M1	5MO
HAP-31806	Molecular Regulation of Health and Disease	6	RO2	M1/2	1MO
HNE-26806	Introduction to Nutrition and Health in Developing Countries	6	RO2	M1/2	1MO
HNE-37806	Nutrition and Cancer	6	RO2	M1/2	1MO
FCH-21806	Food Related Allergies and Intolerances	6	RO2	M1/2	2AF
HNE-31206	Immunometabolism	6	RO2	M1/2	2AF
HNE-32106	Nutrition and cardiometabolic diseases	6	RO2	M1/2	2AF
HNE-31006	Study Design and Interpretation in Epidemiology and Public Health	6	RO2	M1/2	3WD
HNE-27806	General Medicine	6	RO2	M1/2	4WD
TOX-30306	Food Toxicology	6	RO2	M1/2	4WD
CPT-39506	Public Health Practice	6	RO2	M1/2	5AF
HNE-33306	Public Health Nutrition: Development of Nutrition Intervention Programmes	6	RO2	M1/2	6AF
HNE-37506	Metabolic Consequences of Chronic Disease; Nutritional and Pharmacological Intervention	6	RO2	M1/2	6MO
HNE-36406	Monitoring, Evaluation and Impact Assessment of Food and Nutrition Programmes	6	RO2	M1/2	6WD
HAP-80436	MSc Thesis Human and Animal Physiology	36	RO3	M2	Possible every period
HNE-81036	MSc Thesis Nutrition and Pharmacology	36	RO3	M2	Possible every period
HNE-83836	MSc Thesis Sensory Science and Eating Behaviour	36	RO3	M2	Possible every period
HNE-84836	MSc Thesis Nutrition and Disease	36	RO3	M2	Possible every period
HNE-85336	MSc Thesis Nutrition and Health over the Lifecourse	36	RO3	M2	Possible every period



Specialization C: Molecular Nutrition and Toxicology

Students should have successfully completed the selected RO0-courses and mandatory prerequisites before they can start with their first thesis or internship.

RO0: Select all of the courses lack in your prior education in consultation with your study adviser.

RO1: Choose at least 2 courses. Take into account the thesis prerequisites.

RO2: Choose at least 6 credits.

RO3: Choose 1 thesis.

Course	Ects	CS/RO	Year	Period	
HAP-30306	Nutritional Physiology	6	CS	M1	2MO
HNE-24806	Introduction to Epidemiology and Public Health	6	RO0	M1	1AF
MAT-14303	Basic Statistics	3	RO0	M1	1MO
HNE-24306	Methodology Nutrition Research	6	RO0	M1	2AF
CBI-30306	Human and Veterinary Immunology	6	RO1	M1	1AF
HNE-31206	Immunometabolism	6	RO1	M1	2AF
HNE-31106	Practical tools in molecular nutrition research	6	RO1	M1	3WD
TOX-30306	Food Toxicology	6	RO1	M1	4WD
HNE-34806	Applied Nutrigenomics	6	RO1	M1	5AF
HNE-39306	Pharmacological Aspects of Nutrition	6	RO1	M1	6AF
HNE-37506	Metabolic Consequences of Chronic Disease; Nutritional and Pharmacological Intervention	6	RO1	M1	6MO
HAP-31806	Molecular Regulation of Health and Disease	6	RO2	M1	1MO
HNE-30506	Principles of Sensory Science	6	RO2	M1/2	1AF
HNE-26806	Introduction to Nutrition and Health in Developing Countries	6	RO2	M1/2	1MO
HNE-37806	Nutrition and Cancer	6	RO2	M1/2	1MO
FCH-21806	Food Related Allergies and Intolerances	6	RO2	M1/2	2AF
HNE-32106	Nutrition and cardiometabolic diseases	6	RO2	M1/2	2AF
EZO-32303	Laboratory Animal Science: Design and Ethics in Animal Experimentation	3	RO2	M1/2	4AF, 6AF
HNE-27806	General Medicine	6	RO2	M1/2	4WD
HNE-32306	Clinical Nutrition Research	6	RO2	M1/2	5AF
HNE-39806	Hidden Hunger: Micronutrient Deficiencies in Developing Countries	6	RO2	M1/2	5AF
HNE-30306	Psychobiology of Food Choice and Eating Behaviour	6	RO2	M1/2	5MO
HNE-36806	Nutrition and Sports	6	RO2	M1/2	5MO
HNE-33306	Public Health Nutrition: Development of Nutrition Intervention Programmes	6	RO2	M1/2	6AF
CBI-80436	MSc Thesis Cell Biology and Immunology	36	RO3	M2	Possible every period
HAP-80436	MSc Thesis Human and Animal Physiology	36	RO3	M2	Possible every period
HNE-81036	MSc Thesis Nutrition and Pharmacology	36	RO3	M2	Possible every period
HNE-82436	MSc Thesis Nutrition, Metabolism and Genomics	36	RO3	M2	Possible every period
TOX-80436	MSc Thesis Toxicology	36	RO3	M2	Possible every period

Specialization D: Sensory Science

Students should have successfully completed the selected RO0-courses and mandatory prerequisites before they can start with their first thesis or internship.

RO0: Select those courses that lack in your prior education, in consultation with your study adviser.

RO1: Choose at least 2 courses, preferably 3, in consultation with your study adviser.

RO2: Choose 1 thesis. In specific situations and in consultation with your study adviser and approval by the board of examiners, another chairgroup can supervise a thesis.

Course		Ects	CS/RO	Year	Period
HNE-30506	Principles of Sensory Science	6	CS	M1	1AF
MCB-32806	Advanced Sensory Methods and Sensometrics	6	CS	M1	2MO
HNE-30606	Instrumental Sensory Science	6	CS	M1	3WD
MCB-33306	Integrated Sensory Science	6	CS	M1	4WD
MAT-20306	Advanced Statistics	6	RO0	M1	1MO
FQD-31806	Product Properties and Consumer Wishes	6	RO1	M1	2AF
MCB-30806	Sensory Perception and Consumer Preference	6	RO1	M1	5AF
HNE-30306	Psychobiology of Food Choice and Eating Behaviour	6	RO1	M1	5MO
FQD-80436	MSc Thesis Food Quality and Design	36	RO2	M1	Possible every period
HNE-83836	MSc Thesis Sensory Science and Eating Behaviour	36	RO2	M2	Possible every period

Specialization E: Nutritional Epidemiology and Public Health (NOTE: our part-time, online offered variant of our programme)

RO1: Choose 1 thesis and 1 internship.

Course		Ects	CS/RO	Year	Period
HNE-28303	Introduction Descriptive Epidemiology and Public Health (DL)	3	CS	M1	1DL
HNE-28803	Introduction Analytical Epidemiology and Public Health (DL)	3	CS	M1	1DL
CPT-39603	Epidemiology and Public Health Policies (DL)	3	CS	M1	2DL
HAP-32303	Essentials of Nutritional Physiology (DL)	3	CS	M1	3DL
HNE-31403	Public Health Intervention Planning (DL)	3	CS	M1	4DL
HNE-33903	Assessment of Nutritional Status (DL)	3	CS	M1	5DL
MAT-25303	Advanced Statistics (DL)	3	CS	M1	5DL
HNE-30403	Integration of evidence I (DL)	3	CS	M1	6DL
YNH-60312	Continuous Course (DL)	12	CS	M1/2	Year Round
HNE-32403	Observational Designs and Assessment of Validity (DL)	3	CS	M2	1DL
HNE-32903	Intermediate Analytical Epidemiology: confounding and effect measure modification (DL)	3	CS	M2	1DL
CPT-39703	Evaluation of Public Health Interventions (DL)	3	CS	M2	2DL
HNE-33403	Advanced Analytical Epidemiology (DL)	3	CS	M2	2DL
HNE-31903	Randomised Controlled Trials: design and analysis (DL)	3	CS	M2	5DL
HNE-34403	Assessment of Dietary Intake (DL)	3	CS	M2	5DL
HNE-34903	Evaluation of dietary assessment methods (DL)	3	CS	M2	6DL
HNE-35903	Integration of evidence II (DL)	3	CS	M2	6DL
CPT-71324	MSc Internship Strategic Communication	24	RO1	M3/4	Possible every period
CPT-81336	MSc Thesis Strategic Communication	36	RO1	M3/4	Possible every period
HNE-74824	MSc Internship Nutrition and Disease	24	RO1	M3/4	Possible every period
HNE-75324	MSc Internship Nutrition and Health over the Lifecourse	24	RO1	M3/4	Possible every period
HNE-84836	MSc Thesis Nutrition and Disease	36	RO1	M3/4	Possible every period
HNE-85336	MSc Thesis Nutrition and Health over the Lifecourse	36	RO1	M3/4	Possible every period



Specialization F: Food Digestion and Health

Students should have successfully completed the selected RO0-courses and mandatory prerequisites before they can start with their first thesis or internship.

RO0: Students without sufficient competencies in these courses should include these courses in their individual study programme.

RO1: Choose at least 2 Food Digestion and Health specific courses.

RO2 - RO3: For the link to the domain Food Science, choose at least 1 course from RO2 and at least 1 course from RO3.

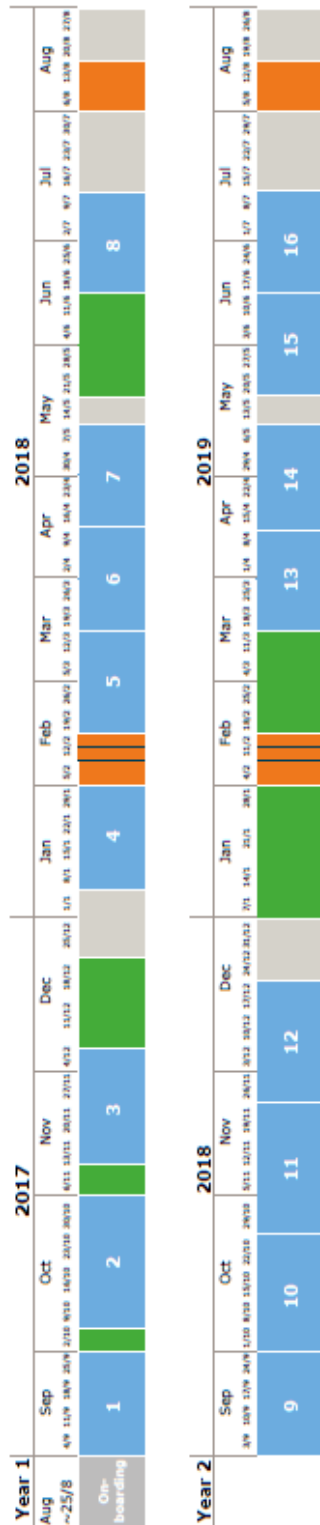
RO4: For the link to the domain Nutrition and Health, choose at least 1 course.

RO5: Choose a thesis on a topic relevant for Food Digestion and Health at FCH, FQD, FPE or HNE.

Course	Ects	CS/RO	Year	Period	
HAP-30306	Nutritional Physiology	6	CS	M1	2MO
HNE-24806	Introduction to Epidemiology and Public Health	6	RO0	M1	1AF
MAT-14303	Basic Statistics	3	RO0	M1	1MO
HNE-24306	Methodology Nutrition Research	6	RO0	M1	2AF
FCH-32306	Food Digestion: Fermentation and Gut Health	6	RO1	M1	3WD
HNE-30706	Food Digestion: Nutrient Breakdown and Absorption	6	RO1	M1	4WD
FPE-32306	Food Digestion: Ingestion and Structure Breakdown	6	RO1	M1	5AF
FHM-20306	Food Microbiology	6	RO2	M1	1AF
FCH-30306	Food Ingredient Functionality	6	RO2	M1	1MO
FCH-21806	Food Related Allergies and Intolerances	6	RO3	M1	2AF
FQD-31806	Product Properties and Consumer Wishes	6	RO3	M1	2AF
TOX-30306	Food Toxicology	6	RO3	M1	4WD
FQD-31306	Predicting Food Quality	6	RO3	M1	5MO
HAP-31806	Molecular Regulation of Health and Disease	6	RO4	M1	1MO
HNE-37806	Nutrition and Cancer	6	RO4	M1	1MO
HNE-32106	Nutrition and cardiometabolic diseases	6	RO4	M1	2AF
HNE-32306	Clinical Nutrition Research	6	RO4	M1	5AF
HNE-34806	Applied Nutrigenomics	6	RO4	M1	5AF
HNE-39806	Hidden Hunger: Micronutrient Deficiencies in Developing Countries	6	RO4	M1	5AF
HNE-32806	Exposure Assessment in Nutrition and Health Research	6	RO4	M1	5MO
HNE-36806	Nutrition and Sports	6	RO4	M1	5MO
HNE-37506	Metabolic Consequences of Chronic Disease; Nutritional and Pharmacological Intervention	6	RO4	M1	6MO
FCH-80436	MSc Thesis Food Chemistry	36	RO5	M2	Possible every period
FPE-80336	MSc Thesis Food Process Engineering	36	RO5	M2	Possible every period
FQD-80436	MSc Thesis Food Quality and Design	36	RO5	M2	Possible every period
HNE-81036	MSc Thesis Nutrition and Pharmacology	36	RO5	M2	Possible every period
HNE-82436	MSc Thesis Nutrition, Metabolism and Genomics	36	RO5	M2	Possible every period
HNE-83836	MSc Thesis Sensory Science and Eating Behaviour	36	RO5	M2	Possible every period
HNE-84836	MSc Thesis Nutrition and Disease	36	RO5	M2	Possible every period
HNE-85336	MSc Thesis Nutrition and Health over the Lifecourse	36	RO5	M2	Possible every period

Master's programme Nutrition and Health for the part-time, online specialization

Schedule for student cohort 2017-2021



- 1 Introduction Descriptive Epidemiology and Public Health
 - 2 Introduction Analytical Epidemiology and Public Health
 - 3 Epidemiology and Public Health Policies
 - 4 Introduction Nutritional Physiology
 - 5 Public Health Intervention Planning
 - 6 Assessment of Nutritional Status
 - 7 Advanced Statistics for Distance Learning
 - 8 Integration of Evidence I
 - 9 Observational Designs and Assessment of Validity
 - 10 Intermediate Analytical Epidemiology
 - 11 Evaluation of Public Health Interventions
 - 12 Advanced Analytical Epidemiology
 - 13 Randomised Controlled Trials
 - 14 Assessment of Dietary Intake
 - 15 Evaluation of Dietary Assessment Methods
 - 16 Integration of Evidence II
- Courses (after each course is an exam)
■ WUR-visit (Year 1: optional visit to Wageningen, Year 2: project work and meeting thesis supervisors)
■ 'Continuous Course: projects and skills training'
■ Re-exams
■ Holiday



APPENDIX 3: PROGRAMME OF THE SITE VISIT

11 December 2018

17.00	18.00	Arrival of the panel, Preparation, documentation review
-------	-------	---

12 December 2018

9.00	9.45	Interview with management (including Programme Committee)
9.45	9.50	Mini break
9.50	10.35	Students BSc
10.35	10.45	Break
10.45	11.30	Teaching staff BSc
11.30	11.35	Mini break
11.35	12.20	Students MSc
12.20	13.20	Lunch and deliberations panel
13.20	13:50	Students Msc part-time (evt via skype)
13.50	14.35	Visit Wageningen human health research unit
14.35	14.45	Break
14.45	15.30	Teaching staff MSc
15.30	15.35	Mini break
15.35	16.05	Examining Board and Study Advisor(s)
16.05	16.35	Alumni
16.35	17.30	Internal deliberation panel, short recap day 1

13 December 2018

8.45	10.30	Deliberations panel and documentation review
10.30	11.00	Final interview with management
11.00	12.45	Deliberations panel and formulating preliminary findings and conclusions + lunch
12.45	13.15	Feedback of preliminary findings and conclusions

APPENDIX 4: THESES AND DOCUMENTS STUDIED BY THE PANEL

Prior to the site visit, the panel studied fifteen theses of the bachelor's programme Nutrition and Health and fifteen theses of the master's programme Nutrition and Health. Information on the selected theses is available from QANU upon request.

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

- Annual reports by the Examining Board
- Annual reports and minutes by the Programme Committee
- Extensive information and documentation on the following courses:

BSc Nutrition and Health		
<i>Course code</i>	<i>Course Title</i>	<i>Place in curriculum</i>
HNE10806	Nutrition and Health: Macronutrients, Energy and Health	2nd period year 1
HAP21303	Integrated Human Physiology	1st period year 2
HNE25806	Research Methodology for Nutrition and Health I	end of year 2
HNE26306	Research Methodology for Nutrition and Health II	end of year 2
MSc Nutrition and Health - on campus / full time		
HNE39806	Hidden Hunger: Micronutrient Deficiencies in Developing Countries	5th period 1st year spec B
HNE31106	Practical tools in molecular nutrition research	3th period 1st year spec C
HNE30506	Principles of Sensory Science	1st period 1st year spec D
MSc Nutrition and Health - distance learning / part time: Nutritional Epidemiology and Public Health		
CPT39703	Evaluation of Public Health Interventions (online)	2nd period 2nd year DL
HNE31903	Randomised Controlled Trials: design and analysis (online)	5th period 2nd year DL
HNE32403	Observational Designs and Assessment of Validity (online)	1st period 2nd year DL

