

***Programme-specific appendix to the programme
section of the student charter including the
education and examination regulations for the
master of science programme of Health Sciences***

(art. 7.13 and 7.59 WHW)

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Preamble

1. The rules and regulations in this appendix apply to the full-time master of science programme of Health Sciences.
2. Together with the General Section (TNW18066/vdh), this appendix constitutes the programme part of the Student Charter including the education and examination regulations (EER) of the master of sciences programme of Health Sciences of the Faculty Science & Technology.
3. The rules and regulations established by the Board of Examiners of the master of science programme of Health Sciences regarding its duties and responsibilities according to article 7.12b WHW have been included in the Board of Examiners' Rules of the Health Sciences master's programme.

Reference: TNW19258/vdh/gv
Date: 14 March 2019

Article 1 Definitions

Terms used in this regulation and common to the law on Higher Education and Research act (WHW) are defined according to the law.

Article 2 Aims and attainments of the programme

Competence profile Health Sciences University of Twente

(based on academic criteria for bachelor and master curricula, Meijers 2003)

A health scientist of the University of Twente has a focus on making healthcare more effective and efficient. He/she does so by looking at processes, technology, and systems on the level of the patient and caretaker, healthcare organisation and on the level of the health care system. The processes and systems are analysed, (re)designed, implemented and evaluated. The health scientist possesses the ability to define the value of technology within the healthcare from a multi-disciplinary perspective and to advise relevant stakeholders.

These are the seven competences with their indicators.

1. Competent in Health Sciences

A health scientist is familiar with existing scientific knowledge in this context, and has the competence to increase and develop this through study.	
Master	
1.1	Is able to apply the knowledge of the disciplines related to the organization, finances and performance of health care, into the health care challenges that will be addressed.
1.2	Is able to integrate the knowledge of illness, health and behavior in to the health care challenges that will be addressed.
1.3	Has the skill and the attitude to apply methods of truth-finding and the development of theories and models within the field of health sciences.
1.5	Is able to analyse, evaluate and optimise the value of technology within the health sciences.
1.6	Has the skill and the attitude to interpret texts, data, problems, results within the field of health sciences.
1.7	Has the skill and the attitude to apply methods used for experiments, gathering of data and simulations within the field of health sciences.
1.8	Has the skill and the attitude to apply the knowledge about decision making processes within the field of health sciences.
1.9	Is able to reflect on standard methods and their presuppositions; is able to question these; is able to propose adjustments, and to estimate their implications.
1.10	Is able to spot gaps in his / her own knowledge independently, and to revise and extend it through study.

2. Competent in Research

<i>A health scientist has the competence to acquire new scientific knowledge through research. For this purpose, research means: the development of new knowledge and new insights in a purposeful and methodical way to improve the efficiency and effectiveness of health care.</i>	
Master	
2.1	Is able to translate real life challenges within health care into research questions.
2.2	Is able to independently produce and execute a research plan.
2.3	Is able, and has the attitude to, where necessary, draw upon other disciplines in his or her own research
2.4	Is able to deal with the changeability of the research process through external circumstances or advancing insight. Is able to steer the process on the basis of this.
2.5	Is able to draw and substantiate conclusions based on research (data).

3. Competent in Designing

As well as carrying out research, many health scientists will also design. Designing in this context is a synthetic activity aimed at the realisation of new or modified systems, technologies, or processes, with the intention of creating value in accordance with predefined requirements and desires.

Master	
3.1	Has creativity and synthetic skills with respect to design problems.
3.2	Is able to produce and execute a design plan (with supervision).
3.3	Is able to, and has the attitude, where necessary, to draw upon other disciplines in his or her own design.
3.4	Is able to formulate new research questions on the basis of a design problem.
3.5	Has the skill to take design decisions, and to justify and evaluate these in a systematic manner.

4. A scientific approach

A health scientist has a systematic approach characterised by the development and use of theories, methods and coherent interpretations, has a critical attitude, and has insight into the nature of science and technology.

Master	
4.1	Is curious and able to identify and take in relevant developments.
4.2	Is able to critically examine existing theories, models or interpretations in the area of his or her graduation subject.
4.3	Is able to choose and make use of statistical and health economic models.
4.4	Has insight into the nature of science and technology within health sciences (purpose, methods, differences and similarities between scientific fields, nature of laws, theories, explanations, role of the experiment, objectivity etc.) and has knowledge of current debates about this.
4.5	Has insight into the scientific practice (research system, relation with clients, publication system, importance of integrity etc.) and has knowledge of current debates about this.
4.6	Is able to document adequately the results of research and design in a publishable way, with a view to contributing to the development of knowledge in the field and beyond.

5. Basic Intellectual Skills

A health scientist is competent in reasoning, reflecting, and forming a judgment. These are skills which are learned or sharpened in the context of the health sciences discipline, and which are generically applicable from then on.

Master	
5.1	Is able to critically reflect on his or her own thinking, decision making, and acting independently and to adjust these on the basis of this reflection.
5.2	Is able to reason logically within the field and beyond; both 'why' and 'what-if' reasoning, and able to recognize fallacies.
5.3	Is able to recognise modes of reasoning (induction, deduction, analogy etc.) within the field and is able to apply these modes of reasoning.
5.4	Is able to ask adequate questions, and has a critical yet constructive attitude towards analysing and solving real-life problems in the field of health sciences.
5.5	Is able to form a well-reasoned opinion and debate with sound scientific arguments.

6. Competent in Cooperating and Communicating

A health scientist has the competence of being able to work with and for others. This requires not only adequate interaction, a sense of responsibility, and leadership, but also good communication with colleagues and non-colleagues. He or she is also able to participate in a scientific or public debate.

Master	
6.1	Is able to communicate in writing about research and solutions to problems with colleagues, non-colleagues and other involved parties in English.
6.2	Is able to communicate verbally about research and solutions to problems with colleagues, non-colleagues and other involved parties in English.
6.3	Is able to debate about both the field (health sciences) and the place of the field in society.
6.4	Is characterised by professional behaviour. This includes: drive, reliability, commitment, accuracy, perseverance and independence.
6.5	Is able to perform project-based work: is pragmatic and has a sense of responsibility; is able to deal with limited sources; is able to deal with risks; is able to compromise.
6.6	Is actively working on good cooperation and communication within a team.

7. Takes account of the context of Health Sciences

A health scientist is aware of the societal impact of developments within health care and is able to integrate this insight in her/his work.	
Master	
7.1	Is able to analyse and discuss societal consequences of new technological developments.
7.2	Is able to analyse the consequences of scientific thinking and acting on the efficiency and effectivity of health care.
7.3	Is able to recognize and analyse technological developments within the field of health care on a national and international level.
7.4	Is able to identify, specify and debate ethical and normative aspects that are related to technological developments within the field of health and is able to integrate these aspects in his/her work.
7.5	Is able to interpret socio-economic, individual and cultural factors within the challenges addressed in health sciences.

The competences of the Master Programme Health Sciences are equal to those of the bachelor. The level of competence (see description of the objectives per competence) differs by the level of expected independent work behavior and context- and task-complexity of the assignments

Article 3 Admission committee

1. The Board of the Faculty of Science and Technology establishes an admission committee for the purpose of admitting students to the Master's programme who are not directly admitted in conformity with article 4, paragraph 1.
2. The committee, as stated in clause 1, has been authorised by the Executive Board (reference S&C/387.191/lk) to admit or reject applicants.
3. The admission committee consists of:
 - a) the Programme director or programme manager
 - b) a professor or delegated representative involved with the education and research programme in the master (content specialist)
 - c) study-advisor or admission officer

Article 4 Admission to the programme

1. Direct admission to the programme can be obtained by:
 - a) a Health Sciences bachelor's degree from the University of Twente
 - b) a Health Science bachelor's degree from another Dutch University
2. All other candidates will be reviewed by the Admission committee.
3. If a pre-master programme is required for admission to the master, the content of the pre-master programme will be decided by the admission committee.

Article 5 Language of teaching and exams

The courses and the exams in the Master's programme are in English.

The report of the Master's project will be written and defended in English. Students are free to make a translation or summary in Dutch once this is necessary for the dissemination of the research results, but the final grade will be based on the original version in English.

Article 6 The Health Sciences programme

1. Programme

- a. The Health Sciences programme is a one year programme and consists of one semester of educational courses and one semester of performing a research project. The research project leads to writing and presenting a thesis and is therefore also called 'Master Thesis'. Content descriptions of the courses can be found in [OSIRIS](#) (educational catalogue of the University of Twente)

The following table shows the structure of the programme and the credits per course:

Q1	Track	Q2	Q3 & Q4
Health Economic Modelling (5EC) Stakeholder preference elicitation and decision support (5EC) Data Science (5EC)	Personalized Monitoring & Coaching	eHealth Development: A Holistic approach (5 EC)	Master Thesis (30 EC)
		Telemedicine and data Analysis for Monitoring (5 EC)	
		Monitoring & Persuasive Coaching (5 EC)	
	Optimization of Healthcare processes	Optimizing Healthcare Processes (5 EC)	Master Thesis (30 EC)
		Finance & Healthcare Purchasing (5 EC)	
		Quality Management in Healthcare (5 EC)	
	Innovation in Public Health	Public Health Innovations (5 EC)	Master Thesis (30 EC)
		PH: Dynamics in policy, law & regulation (5 EC)	
		Health Economics: Maximizing Societal welfare (5 EC)	

In the first quarter all students will follow the same programme. During the first quarter the student chooses one of the three tracks to follow in the second quarter. The three tracks are:

- Personalized Monitoring & Coaching
- Optimization of Healthcare Processes
- Innovation in Public Health

- b. The choice for one of the tracks requires the student to follow all subjects of that track. It is not permitted to choose a mix of subjects from each track. Subjects from a different track can only be chosen as an additional subject within the individual study programme.

2. Master Thesis

- a) The student has to make up the form 'MSc thesis contract Health Sciences', together with the student's first supervisor.
- b) The student can only start with the thesis project once the project has been approved of by the Board of examiners.
- c) By means of approval of the 'MSc thesis contract Health Sciences', the Board of examiners
- approves of the thesis project proposal;
 - approves of the composition of the assignment committee responsible for the supervision and the assessment of the thesis project;
 - appoints the members of the assignment committee as temporary examiners for the master thesis (article 13.3 of the 'Regels examencommissie GZW-Health Sciences').
- d) The regular time for completing the master thesis is 840 hrs (30 EC), which is 20 weeks for a full-time student. Deviant time schedules for part-time students are only permitted when they have been agreed upon beforehand by the student and the student's first supervisor and are part of the information on the form 'MSc thesis contract Health Sciences'.
- e) Should the student not succeed in completing the master thesis within the abovementioned period of time, the programme director can grant extra time to the student to do so. The extra time to be granted is bound by the limit of 50% (10 weeks) of the regular duration of the thesis for a full-time student.
- f) The master thesis needs to be written in English and the final presentation of the thesis (colloquium) will also be in English.
- g) In order to get a pass to proceed to defence (green-light) the student needs to have finished (passed) all other educational exams of the master's programme.
- h) In order to receive the diploma the student has to submit the master thesis to the University (UT Student Theses Repository). The thesis can be uploaded on: <http://essay.utwente.nl/upload>

- i) If the student had not yet completed the master thesis after the extra time has expired or no pass to proceed (green-light) to defense of the thesis has been given by the first and second supervisor of the master thesis project, the Board of examiners can terminate the master thesis project. Prior to this decision the Board of examiners will hear the student, the supervisors and the programme director.

Article 7 Transitional regulations

1. If the study programme included in article 6 of this appendix is amended, or if one of the articles in the general section or in this programme specific appendix is amended, the programme director will stipulate and publish transitional regulations.
2. The conditions which transitional regulations must meet are stipulated in article 8.4 of the general section.
3. The transitional regulations are published on the programme's page in the digital learning management system CANVAS.

Article 8 Safety

There are safety requirements for working in a laboratory¹, hospital or other health institutions. Students are obliged to inform themselves of these rules and adhere to them.

Article 9 Sequence of units of study

1. In order to start with the Master thesis the student is required to have acquired 20 EC of the Master programme.
2. In order to pass for the Master thesis defence the student needs to have completed all other educational exams of the Master programme(see also article 6.2)

Article 10 Flexible programme

Notwithstanding the provisions in article 6 of this appendix the student can submit a request to the Board of Examiners to follow a flexible programme as referred to in art. 7.3d of the WHW. The Board of Examiners will assess whether the flexible programme, fits the domain of the masters programme, is coherent, and of a sufficient level in light of the aims and attainments of the programme.

Article 11 Student counselling

1. The study advisor advises and guides individual students regarding all aspects of their studies and academic progress.
2. The study advisor informs and advises the staff of the programme regarding educational policies in relation to individual students.
3. The study advisor will provide solicited and unsolicited advice to the Board of Examiners regarding decisions that affect individual students. The study advisor and Board of Examiners will ensure that information about the student is kept confidential.
4. In addition to article 7.1.4 – 7.1.9 of the general Master EER of the Faculty of Science and Technology; the Dean of the faculty has mandated this to the programme management of Health Sciences. In line with article 7.1.2 of the general EER, the student always needs to contact the study counsellor to start a request for study adjustments.

Article 12 Commencement and amendments

These rules and regulations will come into effect on 15 March 2019 and replace the rules and regulations of 31 August 2017.

Enacted by the Board of the Faculty of Science and Technology, having obtained recommendations from the Faculty Council and the Programme Committee and after consent of the Programme Committee with articles 2 and 6.

Enschede, 14 March 2019.

¹ See the 'Health & Safety and Environmental Regulations' ('Arbo- en Milieureglement') on <http://www.tnw.utwente.nl/intra/diensten/amh/> and the TNW laboratory practice group information on http://www.tnw.utwente.nl/onderwijs_overig/practica/.