

**Programme-specific appendix to the
Education and Examination Regulations (EER)
2015-2016**

for the Master of Science Programme

Health Sciences (HS)

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1. Structure and content of the programme

a. Composition of the programme

The programme consists of three components:

- 1) A set of obligatory courses of 10 EC
- 2) A set of obligatory courses per specialization 20 EC
- 3) A final (Master's) assignment of 25 EC and an accompanying course of 5 EC

b. Study load

The Master's programme has a study load of 60 EC (1 year, 1680 hours) (see also section 7.4a, paragraph 1, Higher Education and Research Act).

Table 1 shows the study units (courses) defining the programme and the study load in EC (1 EC = 28 hours) per unit, as well as the specialization (read: track) that each course belongs to. The table also shows the exam format for the study unit and any applicable prior knowledge prerequisites (see also EER, article 4.3 paragraph 6).

For more information on the content of the study units, consult OSIRIS and Blackboard.

Table 1: MSc. Health Sciences: curriculum 2015-2016

CCode	Course name	HTAI EC	HSM EC	Exam format	Prior knowledge
Q 1					
194111220	Clinical Efficacy & Medical Technology Assessment	5	5	PS	
194111210	Medical Decision Making	5		PSS	
	<i>HTAI-track: choose 1 out of 2:</i>	5			
194112600	E-Health & Quality of Care			PS	
201200040	Risk Regulation			PSS	
	<i>HSM-track: choose 2 out of 3:</i>		5 + 5		
201000182	Management of Technology in Health Care			PS	
201500083	Change Management & Consultancy			PS	
201100002	Health Care Purchasing			PS	
Q 2					
194112110	Health & Health Systems	5	5	PSS	
201400193	Regulatory design & Implementation	5		PSS	
201100003	Public Health Policy	5		PSS	
201000066	Quantitative Methods for Operations Management in Healthcare		5	PSS	
194112170	Quality & Safety in Healthcare		5	PSS	
Q 3					
194119090	Masterclass Health Sciences Methodology*	5	5	PS	
194100050	Masterthesis	10	10	BAM	Obligatory: 20 EC
Q 4					
194100050	Masterthesis	15	15	BAM	Obligatory: 20 EC
Total		60	60		

* Course name and code will change and will be published in Osiris
 Within each quartile, the order of the courses in the table above follows the course code and therefore does not necessarily represent the chronological order.

Students can exchange one course within the tracks in quartile 1, provided that they inform the programme coordinator. Students need to hand in a track-choiseform on September 1st 2015 which will be provided during the introduction lecture.

Please note: 194112600 E-Health & Quality can only be exchanged with 201000182 Management of Technology and vice versa.

2. Aims and final attainment targets

a. Aims of the programme

The specific focus of the Health Sciences programme at the University of Twente is on the impact of new (medical) technology on health care and the innovation of health care processes by using technology and other tools. Health Sciences students must therefore learn about the effects of medical technology and organizational change on the quality and efficiency of health care, the multi-dimensionality of health technology assessment, and the optimization of health care processes in terms of quality and efficiency.

Health scientists are trained to acquire knowledge of and insight into multi-agency, sequenced healthcare (meso-level). The Master's programme devotes a great deal of attention to the international comparison of healthcare systems and to a high level of complexity in knowledge and insights.

Health scientists are trained to perform policy, consulting and research functions in which the health scientist can shape his or her profession independently.

The health scientist is also trained to have skills for independent critical judgement, including in the areas of ethics, standards and values. Building on the basic skills acquired in the Bachelor's phase, the health scientist will be able to independently expand his or her repertoire of effective and situationally appropriate communicative skills.

Additionally, the health scientist will be capable of independent reflection and of augmenting his scientific knowledge and skills.

b. Final attainment targets of the programme

The final qualifications (attainment targets) of the Master of Science in Health Sciences programme are defined as follows:

SD - Scientific Discipline: Health Sciences

The student can...

- a) apply evidence based research theories in the analysis and evaluation of healthcare and organizational interventions;
- b) apply the principles of Health Technology Assessment and Health Economics to analyse the efficiency of health care interventions or healthcare technologies;
- c) explain how economic principles affect healthcare decision making;
- d) analyse how different health systems compare in terms of efficiency, equity and accessibility.

SR – Scientific research: Health Services Management (HSM) and Health Technology Assessment & Innovation (HTA&I)

The student can...

- a) apply research and statistical methods in healthcare and health sciences research, including evidence based medicine, systematic reviews and health economic evaluation;
- b) deduce a research question from a complex problem, develop a research proposal and select and apply appropriate methodologies to answer the question.

Track specific HSM (depends on individual course selection)

- c) apply (basic) quantitative operations management tools and techniques for analyzing and developing plans for improving healthcare delivery processes;
- d) use business approaches to analyse the efficiency and quality of healthcare institutes;
- e) understand the basics of healthcare financing and the different payment systems and evaluate the consequences for healthcare markets, including hospitals, insurers and patients;
- f) understand and use quality management methods in healthcare, mainly in hospital benchmarking and performance measurement;

Track specific HTA&I (depends on individual course selection)

- g) use different methods (e.g. MCDA and stakeholder analysis and health economics) to support healthcare decision making at individual, institutional and societal level;
- h) evaluate the risks and benefits of medical technologies in the context of human, regulatory, and ethical issues on effective healthcare;
- i) explain how health policies are made through the inter-relationship of context, process and

- actors;
- j) analyse the typical challenges and behavioral aspects while implementing ehealth strategies to support healthcare delivery.

DES - Design

The student can...

- a) develop a basic HTA&I value dossier for demonstrating clinical and health economic benefits of new medical technologies;
- b) develop healthcare redesign plans to achieve a sustainable and solidary health system.

Track HSM (depends on individual course selection)

- c) design effective and efficient implementation strategies for organizational change to improve the quality & safety of health care delivery processes;
- d) develop strategies for purchasing healthcare products while taking into account the basic financial arrangements that underlie purchasing arrangements between healthcare insurers and hospitals.

Track HTA&I (depends on individual course selection)

- e) design effective and efficient implementation strategies for e-health applications in healthcare settings
- f) design comprehensive analytic framework for analyzing decision problems and providing decision support to individual stakeholders (government, professionals, patients).

SA – Scientific Approach

The student can...

- a) use (different) competing scientific theories (e.g. evidence based medicine and management theories) and select the most appropriate approaches to solve the problems;
- b) analyse the international context of the health care problem, and appraise differences between countries in their attempt to develop a sustainable healthcare system;
- c) identify stakeholders, barriers and facilitators relevant to the healthcare problem to be analysed;
- d) systematically collect and integrate research data from different resources;
- e) write a scientific report/article and present and defend the statements in English.

IC - Intellectual Competencies

The student can...

- a) use logical reasoning in discussion, analysis of problems, written documents and presentations;
- b) reflect on own actions and decisions to improve these when necessary;
- c) work independently;
- d) identify gaps in own knowledge and skills and find ways to close this gap;

C&C – Cooperation and Communication

The student can...

- a) cooperate effectively in a multi-disciplinary team (planning, coordination, team roles) and take responsibility for his own contribution;
- b) communicate on research and problem solutions in writing, both with experts as well as layman;
- c) communicate on research and problem solutions orally, both with experts as well as layman;
- d) use methods and procedures from project management when relevant;
- e) work in an international environment;

TMP - Temporal and Social Context

The student can...

- a) use ethical and legal aspects in the analysis of problems and the making, implementation and evaluation of health care policies;
- b) use scientific, ethical, economic and political aspects of health care interventions in a debate;
- c) describe the most important technological trends in health care (e.g. personalized medicine, genomics/proteomics and nano medicine)

- d) analyse the most important barriers and facilitators to the introduction of new medical or information & communication technology in health care, including the interaction between the different levels of health care (individual, organizational, national, international);
- e) interpret and explain the socio economic, individual and cultural differences of health.

c. Other programme-specific characteristics

The final attainment targets of the Health Sciences programme closely follows the internationally accepted indicators of an academic educational programme on a Master's level laid down in the so-called Dublin Descriptors.

3. Examination and exams

a. Examination

The programme has one examination, the Master's examination at the end of the year. The Master's examination will be successfully completed if the exams of the units of study, including the Master's thesis, have been fulfilled successfully.

b. Content of practical exercises

A unit of study is completed with an exam. An exam can consist of one of the following formats

PS = practical exercise with written report

PSS = practical exercise(s), written or oral report of practical exercise(s) and written exam (exam may only be sat after successful completion of practical exercise(s))

PSA = practical exercise(s) with written report and oral discussion

BAM = in accordance with the rules as set out in the regulations on the Master's project (of Master's thesis).

Practical exercises are generally part of a study unit for which there is a responsible examiner. The structure of the practical exercise(s) is described in general terms in OSIRIS, and in more detail on Blackboard at the beginning of the unit.

Further details can be found in OSIRIS and/or will be announced in time by the examiner.

The programme concludes with the Master's thesis, as part of which the student demonstrates his ability in the integrated application of the knowledge and skills gained from the curriculum of the programme. The Master's assignment represents 25 EC.

The Examination Board of the program establishes the rules governing:

- a. the procedures used to determine a student's eligibility for the Master's project
- b. the manner in which the student's study programme (Master's assignment and courses) is composed and approved
- c. the manner in which the student acquires the Master's assignment
- d. the members of the Master's committee
- e. the manner in which the Master's assignment will be completed, monitored and evaluated.

A Master's committee (Section 5 art. 22 Rules and Regulations of the Examination Board) is assembled for each Master's assignment. The Master's project is an individual project, and is evaluated on an individual basis. The Master's project tests the student's competence in the integrated application of the knowledge, comprehension and skills covered in the study units. The Examination Board provides an evaluation checklist (the Thesis assessment Matrix) to help ensure the quality of the evaluation. Further information on the Master's assignment can be found through the Blackboard site of the Master's assignment HS.

c. Required sequence of exams / Prerequisites

There are no prior knowledge prerequisites in the MSc other than being admitted to the programme.

d. Graduation with distinction (Cum Laude)

- I. If upon sitting the Master's examination, the student has given evidence of exceptional capability, 'cum laude' (with distinction) will be recorded on the degree certificate.

- II. A student is considered to have exceptional capability if each of the following conditions is met:
- the average mark awarded for the study units of the Master's examination is at least 8.0;
 - in the determination of this average, the units that were not evaluated with a numerical mark or for which an exemption was granted are not considered;
 - no study unit was evaluated as not passing, and no more than one unit was evaluated with a mark of 6;
 - the mark of the final unit (Master's project or Master's thesis) is at least a 9;
 - for the MSc degree programmes, a one-year Master's programme must have been completed within 15 months. In special cases, the Examination Board may, at its discretion, permit an excess of this time period.
- III. In exceptional cases the Examination Board may grant the designation of 'cum laude' if the conditions mentioned in paragraph II above have not been fully met. The rules applied by the Examination Board can be found in the Rules & Regulations of the Examination Board.

4. General information

a. Admission to the programme

A request to be admitted to the programme is assessed by an admission committee that consists the following members:

- | | |
|-------------------------|---------------------------|
| • Programme director | drs. H.A.T. Miedema |
| • Programme coordinator | J.F. Donnelly-Stockentree |
| • Study Advisor HS | A.H. Prins |

In addition to the general criteria (section 2 of the TER), Health Sciences distinguishes two types of (inter)national degrees:

- Research Universities (primarily responsible for research-oriented programs)
- Universities (colleges) for professional education prepares students (particular for more practical professions)

The admission committee has specific requirements depending on the degree.

The admission committee assesses international applicants with a Bachelor's degree awarded by a non-Dutch Research University or University (college) for higher Professional education on an individual basis.

The assessment of the applicant's skills is based on (1):

- a NUFFIC credential evaluation
- a motivation letter
- an IELTS score with an overall band score of 6.5 or higher, or a TOEFL internet-based (TOEFL-iBT) score of at least 90
- any additional information required by the admissions committee.

The assessment of all applicant's skills is based on (2) academic background.

For all other applicants the admission requirements are as follows.

A Bachelor's degree in Health Sciences awarded by a Dutch university

Applicants with a Bachelor's degree in Health Sciences awarded by a Dutch university will be admitted to the program. With regard to proficiency in English, the admission committee decides whether additional requirements should be set or a diagnostic test should be taken.

A Bachelor's degree awarded by a Dutch university

Applicants with another Bachelor's degree in a related field awarded by a Dutch university will be admitted after completion of the Health Sciences pre-Master's program. The admissions committee determines the content of the pre-Master's program. The applicant must have successfully completed

the entire pre-Master's program within a period of 12 months.¹

Another Bachelor's degree awarded by the University of Twente

Applicants with Bachelor's degree other than HS awarded by *the University of Twente* may be admitted to the program after completion of the pre-Master's program. The admissions committee determines the content of the pre-Master's programme. The applicant must have successfully completed the entire pre-Master's programme before being admitted to the Master's degree program. For information concerning the admission see <http://www.utwente.nl/master/how-to-apply/current-ut-bachelor-students.doc/>.

A Bachelor's degree in a related field awarded by a Dutch University for higher professional education

Students with a Bachelor's degree in a related field awarded by a Dutch University (college) for higher professional education will be admitted if:

- they have successfully completed the pre-Master's programme within a period of twelve months. The admissions committee determines the content of the pre-Master's programme.
- their proficiency in Mathematics is at pre-university level (Dutch VWO A1, 2 or HAVO Wiskunde B).

Students who have had a higher professional education (HBO) are assumed to be sufficiently proficient in the English language at the start of the Master phase. It is the responsibility of the student to attain this level of English.

The following degrees are currently considered to be degrees in a related field:

- Physical FhysioTherapy (Dutch: Fysiotherapie), Biologie en Medisch Laboratoriumonderzoek, Medische Beeldvormende en radiotherapeutische technieken, Nursing (Dutch: Verpleegkunde), Voeding en Diëtitiek. (pre-Master's programme of 30 EC)

Another Bachelor's degree awarded by a Dutch University (HBO) for higher professional education

Applicants with a degree in a non-related field are judged on an individual basis. In specific cases and on the recommendation of a track coordinator, the admissions committee may grant exemptions, entirely or partly, from the domain-specific part of the pre-Master's programme. The applicant must have successfully completed the entire pre-Master's Program before being admitted to the Master's degree program.

b. 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.

To safeguard the quality of teaching and examination in the English language, the faculty has taken the following measures:

- An assessment is made of all BMS teaching staff and examiners as to their command of the English language. If their IELTS score is slightly below the established minimum level, they will be allowed a remediation period. Failing to meet the standard after this period will lead to exclusion from the English-language programme. Any newcomers will be assessed upon their entry.
- Inclusion of specific demands on their proficiency in the English language in the admission requirements for the BMS English language programmes, wherever a sufficient command is not warranted by the candidates' prior education.

c. International cooperation

The research that is the basis of the master's programme can be internationally orientated, students are invited to write their Master's Thesis on these internationally relevant subjects. This includes the possibility to do the research abroad.

¹ Per course of the pre-Master's programme no more than two attempts are permitted to sit the corresponding exam. If the student fails to successfully complete the pre-Master's programme on time, he/she will not be admitted to the Master's Programme

d. Elective options and requirements to elective

The Master's programme HS offers its students elective choices, by choosing one of two tracks: Health Services and Management (HSM) and Health Technology Assessment & Innovation (HTAI).

In the first quartile (Q1) the student can choose specialization or "track" courses. In the second quartile (Q2) two courses are track-specific, the third course is a shared course. Table 1 MSc. Health Sciences: curriculum 2015-2016 shows the details.

An additional (individual) accent in the programme may result from the student's choice of the subject for his Master's thesis.

Requirements

For the Master's programme of Health Sciences a Master's Thesis Committee has been set up to check Master's assignment proposals. The objective of this check is twofold. Firstly, it focuses on the subject matter of the proposed assignment: does it fit the domain of the Health Sciences' programme? Secondly, the intended supervision of the student's work is assessed: is at least one examiner belonging to the programme's key academic staff involved?

The members of the Master's Thesis Committee are key academic staff members of the Health Sciences programme. Both tracks are represented.

e. Programme committee (OLC)

Members of the Programme Committee (OLC), Lecturers and students from the Bachelor and Master Health Sciences, are appointed by the Dean of the faculty every (two) year(s) (faculty regulations article 13). The most up-to-date composition of the committee can be found at the webpage of the [programme committees](#).

f. Examination Board

Members of the Examination Board are appointed by the Dean of the faculty every two years (faculty regulations article 12). The up-to-date composition of the Board can be found at the [webpage of the Examination Boards](#).

5. Transitional arrangements

(none)