

2c. Programme-specific appendix to the TER 2014-2015

for the Master of Science programme

Health Sciences

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1. Objectives

1a. Profile 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 and in more complex positions.

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 foundational 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.

1b. 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.

1c. Level of the programme

The final attainment targets of the Health Sciences programme closely follow the internationally accepted indicators of an academic educational programme on a Master's level laid down in the so-called Dublin Descriptors (see article 3 of the TER).

2. Composition of the programme

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) making up the programme and the study load in EC (1 EC = 28 hours) per unit, as well as the specialization that each course belongs to. The table also shows the exam format for the study unit and any applicable prior knowledge prerequisites (see also TER, article 16). For more information on the content of the study units, consult OSIRIS and Blackboard.

Table 1: MSc. Health Sciences: curriculum 2014-2015

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 + 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	
201200009	Managing Change & Human Resources			PSA	
201100002	Health Care Purchasing			PS	
Q 2					
194112110	Health & Health Systems	5	5	PSS	
201400193	Regulatory Design and 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		

* The course will start in Q1; the final assessment is in Q3

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 change one course within the tracks in quartile 1, provided that they inform the programme coordinator Wendy Donnelly-Stockentree about this change by e-mail (j.f.donnelly-stockentree@utwente.nl).

Please note: 94112600 E-Health & Quality can only be changed by 194112160 Management of Technology and vice versa.

Key to exam 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).

Determining is that the student provides an achievement that can be assessed. 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 (or Master's project of Master's assignment), 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.

3. Organization of the programme

3a. Coherence and didactic concept

(not yet included)

3b. Electives options

The Master's programme HS offers its students 20 EC of elective choices, by choosing one of two tracks: Health Services and Management (HSM) and Health Technology Assessment.

In the first quartile (Q1) the student can choose 2 out of 3 specialization or "track" courses, alongside a third, shared course. In the second quartile (Q2) two courses are track-specific, the third course is a shared course. Table 1 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.

3c. Requirements set on selection of electives and individual choices

For the Master's programme of Health Sciences a Master's Thesis Commission 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 looked at: is at least one examiner belonging to the programme's key academic staff involved?

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

3d. Content of practical exercises

A practical exercise a unit of study or part of a unit of study, whereby the emphasis is on the student's activities, such as:

1. carrying out a literature research, preparing an assignment or a preliminary design, writing a thesis, article or 'position paper', or delivering a public presentation;
2. carrying out a design or research assignment, doing tests and experiments, participating in practicals, practicing skills;
3. following an internship, taking part in fieldwork or an excursion;
4. participating in other required learning activities aimed at achieving the desired skills.

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 programme.

The Master's assignment (or Master's project or Master's thesis) is not supervised by a single responsible instructor; instead, a Master's committee is assembled for each 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 prescribes an evaluation checklist 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.

4. General information

4a. Admission to the programme

A request to be admitted to the programme is assessed by an admission committee headed by/represented by the programme director.

In addition to the general criteria, Health Sciences distinguishes two types of (inter)national education:

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

The admissions committee has specific requirements depending on the degree.

The admissions 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 letter of motivation
- 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 a 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 a pre-Master's program. The admissions committee determines the content of the pre-Master's programme. The applicant must have successfully

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

completed the entire pre-Master's programme before being admitted to the Master's degree program². 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 (college) 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 a pre-Master's programme within a period of twelve months³. 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 phase⁴. 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 PhysioTherapy (Dutch: Fysiotherapie), Biologie en Medisch Laboratoriumonderzoek, Medische Beeldvormende en radiotherapeutische Technieken and Nursing (Dutch: Verpleegkunde) (pre-Master's programme of 30 EC)

Another Bachelor's degree awarded by a Dutch University (college) 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.

4b. Language of teaching and exams

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

The report of the Master's project will be drafted 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, MG has taken the following measures:

- An assessment is made of all MG 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 MG English language programmes, wherever a sufficient command is not warranted by the candidates' prior education.

4c. International cooperation

(not applicable)

4d. Program Committee (OLC) and Examination Board

² Idem (as the previous note)

³ Idem (as note 15)

⁴ Their proficiency in the English language is at pre-university education level (Dutch: VWO) or at academic IELTS level with overall band score of 6.5 or higher, or a TOEFL internet based (TOEFL-iBT) score of at least 90.

Members of the Programme Committee (OLC) 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](#).

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