Teaching and Examination Regulations
Appendices
Research Master Programs

Health Sciences
Clinical Research
Infection & Immunity
Molecular Medicine
Neuroscience

Academic year 2019-2020

Date: 2019-05-28

Teaching and Examinations Rules Team

D.C. van Gent, PhD, Program Director Molecular Medicine
G. Jansen, PhD, Vice Program Director Molecular Medicine
F.L. van Vliet, PhD, Managing Director Infection and Immunity
L.J. Blok, PhD, Senior Advisor Education, Erasmus MC
L.M.R. Nijs-de Langen, Coordinator Neuroscience
J.L. Nouwen, PhD, Program Director Infection and Immunity
M.T.G. de Jeu, PhD, Program Director Neuroscience,
A.J. Bout-Tellegen, PhD, Coordinator Health Sciences and Clinical Research
M.T. van Berckel Bik, Coordinator Molecular Medicine
S.C. Markestijn, LL.M, member of the Works Council
B.C. van Aken, Member of the Education Committee
J.N.J. Philipsen, PhD, Chair of the Education Committee
M.M. Jaegle, PhD, member of the Examination Board (chamber ReMa)
G.M. van Woerden, PhD, member of the Examination Board (chamber ReMa)
A.J.M. Verhoeven, PhD, Vice-chair of the Examination Board (chamber ReMa)
M. de Jong-Noordermeer, LL.M, secretary of the Examination Board
F.R. van den Berge, member Studentcouncil
D.S Mulder, member Student council

Table of contents

1 Introduction, objective and admission

For students from the five Research Master programs, the admission criteria in this appendix apply. In all situations in which the provisions do not provide, the Program director of the Research Master courses decides.

1.1 Objective of the Research Master program

In the Research Master Program students acquire the following skills and knowledge:

- The ability to formulate a relevant problem and translate it into a scientific question.
- The ability to translate a scientific question into a scientific protocol and/or a research proposal.
- The ability to carry out an extensive literature study of an issue.
- Acquisition of adequate knowledge where scientific research and biostatistics analytical methods are concerned, and the ability to apply this knowledge in composing a research proposal and in performing, analyzing and interpreting research.
- Acquisition of adequate knowledge where legislation, regulations and ethical rules are concerned, and the ability to apply this knowledge in composing a research proposal.
- The ability to collaborate with other members of the research group in order to set up and carry out a research project; to collect data and to analyze these data to draw up conclusions.
- The ability to compose a concept manuscript or Master of Science thesis, which, possibly in collaboration with the primary investigator, can be further developed into a scientific manuscript suitable for publication in an international peer-reviewed journal.
- The ability to present the research findings in a scientific meeting.
- The ability to respond to criticism from internal and external evaluators on the Master of Science thesis.
- The ability to critically review and assess relevance of scientific results of others.
- The ability to assess the relevance of basic scientific results for clinical practice, if relevant.
- The ability to translate a clinical research question into an opinion for basic scientific research, if relevant.
- The ability to assess causality.

1.2 Admission requirements per Research Master program

1.2.1 General

For all Research Masters the Admissions and Assessment Committee determines whether a student is admitted to the program. Reasons will be given for the decision not to admit a student on his or her request.

Candidates who meet the selection criteria may be invited by the Admissions Committee for an additional interview (in person or via the internet) and an entrance examination.

Lateral entry admission is possible. This means that students of the Erasmus MC or other institutes can be placed in the second year of the Master of Science program. These students must have successfully completed the first year of another equivalent Research Master, or have

obtained comparable knowledge elsewhere. Requests for exceptions to lateral entry admission should be submitted to the Examination Board by the Program Director. This request must be honored before the student may be admitted.
Candidates must demonstrate that they meet the selection requirements for written and spoken English. International applicants from countries where English is not the official language and who have not had any English-language education at secondary school and university must take a TOEFL, IELTS or Cambridge proficiency test. The result of the TOEFL test must be at least 575 (paper based) with partial scores of at least 57, or a score of 232 (computer based) with partial scores of at least 23. The applicant must achieve a minimum score of 90 for the online test with a minimum partial score of 22. The achieved Cambridge proficiency level should be C1. The result of the IELTS test must be at least 6.5 with partial scores of at least 6.0. Candidates who have completed their Dutch HBO/VWO do not need to take any of these tests.

1.2.2 Health Sciences

Admission to the program is possible for:

- Candidates with a Bachelor degree in a discipline relevant to the health sciences such as medicine, health sciences, (medical) biology, chemistry, pharmacy, human movement sciences, sociology, psychology, nutrition, dentistry and veterinary medicine, or a broad Bachelor's education with sufficient basic subjects in the abovementioned disciplines. In addition, candidates must have affinity with research, as demonstrated by their motivation letter.

1.2.3 Clinical Research

Admission to the program is possible for

- Candidates with a Bachelor degree in medicine, biomedical sciences or medical biology, or a broad bachelor education with sufficient basic subjects in medicine and/or biomedical sciences and/or medical biology. In addition, candidates must have affinity with research, as shown in the motivation letter

1.2.4 Infection and Immunity

Admission to the program is only possible for:

- Medical students (from the Netherlands or international students), who have successfully completed their Bachelor.
- Biology, biomedical sciences, biochemistry, veterinary medicine, pharmacy and molecular sciences (LUW) students (from the Netherlands or international students), who have successfully completed their Bachelor.
- HLO-BML (Higher Laboratory Education Biomedical Laboratory Techniques) students who have successfully completed their studies.

After a positive assessment by the Admissions and Assessment Committee (see 1.3.3 and 1.4.2), the student is admitted to the Research Masters program Infection and Immunity. However, the first tests for competence and suitability for the Infection and Immunity program are the (re)exam for the Summer Course I and the interim assessment (Mid Term Review) of the first lab internship of the Research Masters program Infection and Immunity. If the student does not pass the (re)exam of the Summer Course I, or if the interim assessment of the first lab internship

is negative, the student receives the advice to stop the study, because the student shows insufficient capacities to successfully complete the program in the future.

1.2.5 Molecular Medicine

Admission to the program is only possible for:

- Candidates with a Bachelor of Science degree in one of the biomedical sciences (such as biology, biochemistry, biomedical sciences)
- Candidates with a Bachelor of Science degree from a Dutch higher professional program in biomedical laboratory techniques (HBO-BML)

Admission to the program is also possible for medical students who have successfully completed their Bachelor program and who have shown to be interested in biomedical research. For foreign candidates study results already achieved are used in the assessment: they must have a minimum grade point average of 80%.

1.2.6 Neuroscience

Admission to the course is only possible for:

- Candidates with a Bachelor of Science degree in one of the Life Science disciplines
- Candidates with a Bachelor of Science degree in psychology with demonstrable basic knowledge in Life Sciences
- Candidates with a Bachelor of Applied Sciences with a GPA of 8.0 for the entire degree program

In addition, Candidates have passed their admissions examination with 7.0 or more

1.3 Admissions and Assessment Committee

1.3.1 Health Sciences.

The Admissions and Assessment Committee of the Research Master program in Health Sciences for external candidates with a different study background than Medicine at the Erasmus MC consists of a program director of a participating department in the Netherlands Institute for Health Sciences (NIHES) and a program coordinator. The Health Sciences and Clinical Research Admissions and Assessment Committee for medical students consists of the Program Directors of the two programs, lecturers who are closely involved with the program and a program coordinator.

1.3.2 Clinical Research.

The Admissions and Assessment Committee of the Research Master program in Clinical Research for external candidates with a different study background other than Medicine from the Erasmus University consists of a member of the advicecouncil of Clinical Resrach and a program coordinator. The Health Sciences and Clinical Research Admissions and Assessment

Committee for medical students consists of the Program Directors of the two programs, lecturers who are closely involved with the program and a program coordinator.

1.3.3 Infection and Immunity.

The Infection and Immunity Admissions and Assessment Committee consists of the Program Director (or Deputy Program Director), the Scientific Director (or his Deputy) and key lecturers closely involved in the program. The presence of three members and consensus is required for admission to the program.

1.3.4 Molecular Medicine.

The members of the Admissions and Assessment Committee are the board members of the Research Master program, the Program Director, and where applicable a course coordinator. The presence of at least two members and consensus is required for admission to the program.

1.3.5 Neuroscience.

The members of the Admissions and Assessment Committee are the board members of the Research Master program, the Program Director, and where applicable a course coordinator. The presence of at least two members and consensus is required for admission to the program.

1.4 Admission procedure

1.4.1 Health Sciences and Clinical Research

A written selection procedure is applied for external candidates with a different study background than Medicine from the Erasmus University who apply for the Research Master program in Health Sciences. The application documents of these students will be assessed by the Admission and Assessment Committee. For medical students, an interview can be part of the admission procedure. If there are insufficient places on one of the Health Sciences or Clinical Research Masters suitable candidates will be offered a place on the other Master.
The applicant will receive a written response within six weeks with the outcome of his application.

1.4.2 Infection and Immunity

All medical students at the Erasmus MC who write an application letter are invited for an interview. A written selection procedure is first applied for the other candidates who apply for the Research Master program. The application forms of these students will be assessed by the Admissions and Assessment Committee. On this basis, selected students are invited for an interview. The applicant will receive a written response within six weeks of the interview with the outcome of his application.

1.4.3 Molecular Medicine

Candidates who meet the selection criteria listed under 1.2 can be invited by the Admissions and Assessment Committee for an additional admission interview (in person or online) and an entrance examination. Admission is decided based on results achieved in previous education,

the result obtained in the entrance examination, the references, and the personal motivation of the candidate, as presented in the written motivation and/or the individual admission interview. The Admissions and Assessment Committee determines whether a student is admitted to the program. The applicant receives a written notification of the outcome of his application within six weeks, unless the entrance exam has not yet been taken at that time.

1.4.4. Neuroscience

Admission is decided based on results achieved in previous education, the result obtained in the entrance examination, the references, and the personal motivation of the candidate, as presented in the written motivation and/or the individual admission interview. The Admissions and Assessment Committee decides whether a student is admitted to the program. Rejection or admission to year 1 of the Neuroscience Research Master program is communicated in writing. At the request of the student, within a week of the result, the rejection is also further explained in a personal conversation and/or in writing. The applicant receives a written notification of the outcome of his application within six weeks, unless the entrance exam has not yet been taken at that time.

2. Assessment

2.1. Interim exams

2.1.1 Health Sciences and Clinical Research

Interim exams are taken during the module or at the end of the block. The learning environment of Canvas and the NIHES website contain information about which subjects interim exams are given. For certain subjects or sections of subjects an attendance obligation applies. In case of an attendance obligation for the entire course, the upper limit for absence is 20%. EC points are only granted if the attendance obligation has been met and a sufficient result has been obtained on the interim exam.

2.1.2 Infection and Immunity

The compulsory courses Summer Course 1 & 2, Winter Course 1 & 2 and Population Dynamics in Infection and Immunity are concluded with a written exam in any case. Students are allowed a maximum of 20% absence. For the whole I&I program applies that absence is allowed only after motivated sign out, and in consultation with the director of the program (in this case the Program Director or managing director). In principle the student is present, the 20% is the upper limit for absence in the event of any non-preventable absence. EC points are only awarded if the obligation to attend has been complied with and a satisfactory result is obtained for the examination if the course has interim exams. The student must be available to attend the compulsory courses and research outside of the timetable free periods in the timetable of the I&I Master program.

2.1.3 Molecular Medicine

All course components of the Molecular Medicine program are tested as explained in the study guide. Attendance is obligatory for a number of subjects. Students are only allowed to be absent for a maximum of 20% after motivated sign-out to the program coordinator and/or the relevant course coordinator. EC points are only awarded if the obligation to attend has been met and a satisfactory mark has been awarded for a test.

Access to year 2 of the Molecular Medicine Research Master program. Achieving 40 EC points of year 1 gives right of access to the following second year of the Molecular Medicine Research Master program.

2.1.4. Neuroscience

For all course part in the program (i.e. modules, workshops, labtalks and seminars) an attendance obligation applies. Students are only allowed to be absent for labtalks and seminars for a maximum of 20% after motivated sign-out to the program coordinator and/or the relevant course coordinator.

Progress and assessment in year 1

a. Year 1 consists of various modules, each with a period of approximately 3 weeks, in which periods the various components of the neurosciences are dealt with compactly. Modules are coordinated by a module coordinator. In addition in year 1, a research proposal is prepared and initial experiments are carried out for that purpose, under the direction of the student's research supervisor.
b. The applicable EC points for each module are awarded afterwards if 60% of the maximum score to be obtained for an examination has been obtained. A second chance is offered for each module if an insufficient result is achieved.
c. During year 1, the student is expected to be present at weekly work discussions at the department of Neuroscience, and at other scientific meetings and seminars. The EC points for this are awarded by the program director. If a student is insufficiently present (up to 20% absent) at these meetings he will be addressed in order fulfill this obligation at least three months before the end of year 1 by his research Master coordinator or the Program Director.

   At the end of year 1, the student will submit a written research proposal, and give an oral presentation. An assessment committee, consisting of two research supervisors with ample experience in research supervision, will be present at the presentation and may ask the student questions following the presentation. The Assessment Committee decides on the grade for the research proposal and presentation, where the view of the research supervisor is explicitly taken into account.

Access to year 2 of the Neuroscience Research Master program. Achieving the 60 EC points of year 1 gives right of access to the following second year of the Neuroscience Research Master program.

Progress and assessment in year 2

d. In the second year at least 10 EC points must be obtained by following workshops. Examination is done by the various workshop coordinators in accordance with the provisions that also apply to the examination of the modules in the 1st year. Practical skills and research technical components of the neurosciences are taught compactly at these workshops. Workshops are coordinated by a workshop coordinator. In addition, at the end of year 1, the proposed research is conducted and reviewed under the supervision student's research supervisor.
e. In the second year at least 10 EC points can be obtained by following workshops. This will be assessed by the various workshop coordinators in accordance with the provisions that also apply for the assessment of the modules in the first year.
f. During year 2, the student is expected to be present at general and specialized (work) discussions at the department of Neuroscience indicated by the research supervisor, and at other scientific meetings and seminars. The EC points for these are awarded by the program director. If a student is insufficiently present at these meetings he will be approached by the Master of Science coordinator or the program director at least three months before the end of year 2 to discuss how the obligations can be met.
g. Substitute education is possible according to the conditions as set out in 4.1.4

2.2. Resits

2.2.1. Health Sciences and Clinical Research

Each interim exam is subject to a maximum number of attempts of three times. After the third attempt the student must submit a request for an extra resit to the Examination Board.
There are two regular exam times per year: an exam and a re-sit. A third examination opportunity is only organized during the current academic year if at the end of the current academic year the student can and wants to graduate and has already used the other two exam opportunities in that academic year, or can reasonably prove that he was unable to do so.
The procedure for a resit for the scientific research is written down in section 2.2 of the TER.

2.2.2 Infection and Immunity

There is a maximum number of three attempts for each exam. All exams may be retaken, even if a sufficient mark was obtained, after which the highest mark is valild. This can only take place if a re-examination is organized for the students that have earned an insufficient mark.

2.2.3 Molecular Medicine

Students are entitled to one resit per year, per test.

2.2.4 Neuroscience

Students are entitled to one resit per test. However, this does not apply for the proposal and proposal presentation (in the first year), nor for the thesis and thesis defense (in the second year of the program). These two assignements consists of multiple components and should be considered as a portfolio. If the 60 EC points for year 1 and year 2 are not obtained, in individual cases at the written request of the student, if possible, supported by his research supervisor and due to special circumstances, a resit can be offered at the discretion of the Examination Board. If a student, even after a possible resit, has not passed the final exam of the first year access to the second year of the program is denied.

2.3. Master of Science (MSc) thesis

2.3.1 General

The program is concluded with the defense of a Master of Science (MSc) thesis. The thesis is in the form of a report written by the student alone that in principle can be submitted to a peer-reviewed international journal as a scientific paper. The Master thesis must demonstrate that the student has the skills to collect data and to present results, and has sufficient knowledge to write a scientific article. Students must also respond to comments on the master thesis by internal and external reviewers, as if responding to a peer review in an international peer reviewed journal. Submitting the manuscript for publication is not required, but is an aim. Defense of the MSc thesis consists of oral presentation of the objective, the methods used (or to be used), results and conclusions of the research.

2.3.2 Health Sciences

The master thesis will be evaluated by the research supervisor and an independent evaluator. This final assessment is made by the Program Director. This final assessment is enacted by the program director of the specialization followed by the student. The students must present their thesis to the research group of the department where they did their internship.

2.3.3 Clinical Research

The MSc thesis will be assessed by the research supervisor, at least one member of the Clinical Research Advisory Board and an independent evaluator after the defence. The students must present their thesis to the research group of the department where they did their internship.

2.3.4 Infection and Immunity

The master thesis will be assessed by the research supervisor, at least two members of the Admission and Assessment Committee and an external reviewer. Defense of the MSc thesis consists of oral presentation of the objective, the methods used (or to be used), results and conclusions of the research. The final result of the labwork, assessment of the thesis, the presentation and defence will be reported together to the Educational Director and will lead to a final mark.

2.3.5 Molecular Medicine

The Master thesis contains a detailed introduction and 'Materials and Methods' section that is more extensive than required for a scientific article. The manuscript of the Master thesis will be assessed by the research supervisor, an independent assessor and the coordinator of year 2 of the master program. Defense of the MSc thesis consists of an oral presentation of the objective, the results and conclusions of the research. The final result of the evaluation, presentation and defense determine the final grade for the Master of Science thesis.

2.3.6 Neuroscience

For Neuroscience, the Master of Science thesis and oral presentation, the rebuttal and the revision of the Master of Science thesis are assessed by at least 2 independent examiners as described in 2.1.4 paragraph c and d (progress and assessment in year 1). An independently written rebuttal on the review of the Master of Science thesis must demonstrate that the student can defend his research, research results and conclusions and / or assess their value. The review and rebuttal procedure can lead to an overhaul of the Master of Science thesis.

3 Programs

3.1.1. Health Sciences, 2 years full-time 2019-2020

	Research Master of Science in Health Sciences - 120 EC points - 2019-2021												
	Calendar	Course code	Course	EC	EC points** per specialisation								
	COMMON CORE				**EP**	**CE**	**GE**	**PH**	**HEA**	**MP**	**Bstat**	**HDS**	**Medical students**
	Aug 2019	ESP01	Principles of Research in Medicine and Epidemiology	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	Aug-Sept 2019	CC01	Study Design	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Sept-Oct 2019	CC02	Biostatistical Methods I: Basic Principles	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
	Nov-Dec 2019	EP03	Biostatistical Methods II: Classical Regression Models	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Nov 2020-Jan 2021	SC07	Scientific Writing in English for Publication	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	Sep 2019-Jun 2021	SEM	24 research seminars	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	Sep 2019-Jun 2021	RM-LLS	Lifelong Learning Skills	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
			Common core TOTAL EC points	**19.8**	**19.8**	**19.8**	**19.8**	**19.8**	**19.8**	**19.8**	**19.8**	**19.8**	**19.8**
	REQUIRED				**EP**	**CE**	**GE**	**PH**	**HEA**	**MP**	**Bstat**	**HDS**	**Med**
ESP YR 1	Aug 2019	ESP11	Methods of Public Health Research	0.7	0.7	0.7		0.7	0.7	0.7		0.7	EC points according to chosen specialisation except for research
	Aug 2019	ESP14	Clinical Trials	0.7							0.7		
	Aug 2019	ESP21	Pharmaco-epidemiology	0.7						0.7			
	Aug 2019	ESP25	Health Economics	0.7		0.7			0.7			0.7	
	Aug 2019	ESP41	Introduction to Global Public Health	0.7	0.7	0.7		0.7	0.7			0.7	
	Aug 2019	ESP42	Methods of Health Services Research	0.7				0.7					
	Aug 2019	ESP43	Principles of Genetic Epidemiology	0.7			0.7						
	Aug 2019	ESP45	Primary and Secondary Prevention Research	0.7	0.7			0.7		0.7			
	Aug 2019	ESP57	Genomics in Molecular Medicine	1.4			1.4						
	Aug 2019	ESP61	Social Epidemiology	0.7	0.7			0.7		0.7			
	Aug 2019	ESP63	Advances in Genomics Research	0.4			0.4						
	Aug 2019	ESP65	The Practice of Epidemiologic Analysis	0.7		0.7						0.7	
	Aug 2019	ESP70	Fundamentals of Medical Decision Making	0.7	0.7	0.7			0.7	0.7		0.7	
	Aug 2019	ESP74	Genome-wide Association Studies	0.7			0.7						
	Aug 2019	ESP75	Human Epigenomics	0.7			0.7						

FALL SEMESTER YR 1	Aug / Oct 2019	BST01	Review of Mathematics and Introduction to Statistics	1.0							1.0	1.0	
	Oct 2019	CE01	Clinical Translation of Epidemiology	2.0		2.0					2.0		
	Oct-Nov 2019	CE02	Clinical Epidemiology	3.7		3.7					3.7	3.7	
	Oct 2019	GE14	Linux for Scientists	0.6			0.6						
	Oct-Nov 2019	MP01	Psychology in Medicine	5.7						5.7			
	Nov 2019	MP02	The Placebo Effect	1.4						1.4			
	Oct-Nov 2019	GE02	Genetic-epidemiologic Research Methods	5.1			5.1						
	Oct-Nov 2019	HS02	Public Health Research: part a, b and c	5.7				5.7					
	Oct-Dec 2019	GW4546M	HealthTechnology Assessment	5.0					5.0				
	Nov 2019	GE08	SNPs and Human Diseases	1.4			1.4						
	Nov 2019	HS03a	International Comparison of Health Care Systems	1.4				1.4					
	Nov 2019	EP01	Principles in Causal Inference	1.4	1.4	1.4					1.4	1.4	
WINTER-SPRING SEMESTER YR 1	Winter 2020	GE03	Advances in Genome-Wide Association Studies	1.4			1.4						
	Winter 2020	GE05	Family Based Genetic Analysis	1.4			1.4						
	Winter 2020	EWP02	Advanced topics in Decision-making in Medicine	2.4								2.4	
	Winter 2020	CE16	Using R for Decision Modeling, Simulation, and Health Technology Assessment	1.1								1.1	
	Winter 2020	MP03	Psychopharmacology	1.4						1.4			
	Winter 2020	MP05	Preventing Failed Intervention Research	1.4						1.4			EC points according to chosen specialisation except for research
	Winter 2020	GE13	An introduction to the Analysis of Next-generation Sequencing Data	1.4			1.4						
	Spring 2020	CE15	Advanced Decision Modeling	1..4								1.4	
	Spring 2020	HS11	Quality of Life Measurement	0.9						0.9			
	Spring 2020	CE08	Repeated Measurements (also in Spring 2021)	1.7							1.7		
	Spring 2020	EP16	Missing Values in Clinical Research	1.7							1.7		
	Spring 2020	PU03	Site Visit to the Municipal Health Center	0.3				0.3					
ESP YR 2	Aug 2020	ESP48	Causal Inference	1.4	1.4	1.4			1.4				
	Aug 2020	ESP69	Causal Mediation Analysis	1.4	1.4								
	Aug 2020	ESP77	Advances in Clinical Epidemiology	0.7	0.7	0.7							
YEAR 2	Winter 2021	BST02	Intermediate Course in R	1.4							1.4		
	Winter 2021	EWP03	Pharmaco-epidemiology and Drug Safety	1.9	1.9								
	Winter 2021	EWP10	Advanced Topics in Clinical Trials	1.9	1.9	1.9							
	Winter 2021	EWP13	Advanced Analysis of Prognosis Studies	0.9	0.9	0.9						0.9	
	Winter 2021	EWP25	Principles of Epidemiologic Data-analysis	0.7	0.7								
	Spring 2021	CE08	Repeated Measurements (also in Spring 2020)	1.7		1.7						1.7	
	Spring 2021	CE09	Bayesian Statistics	1.4							1.4		
	Spring 2021	GW4579M	Research Topics in Health Economics	5.0					5.0				
	Spring 2021	FEM11087	Quantative Methods for Applied Economics	4.0					4.0				
	Spring 2021	PU04	Integration Module	0.3				0.3					
	Spring 2021	PU06	Public Health in Low and Middle Income Countries	3.0				3.0					
	Jan 2020-Jul 2021	RM-RES	Research	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	
	Jan 2020-Jul 2021	RM-RES-MED	Research (incl. Final Exam)	67.0									67.0
			Required TOTAL EC points		**80.8**	**84.2**	**82.2**	**81.2**	**85.2**	**81.3**	**82.0**	**84.1**	

ELECTIVES				EP	CE	GE	PH	HEA	MP	Bstat	HDS	Med
Oct-Nov 2019	EP students choose between either:			5.7								EC points according to chosen specialisation
	CE01	Clinical Translation of Epidemiology AND	2.0									
	CE02	Clinical Epidemiology	3.7									
		OR										
	HS02	Public Health Research: part a, b and c	5.7									
	HEA students choose at least 10 EC points out of the following courses:							10.0				
	GW4568M	Economics of Health and Health Care	5.0									
	GW4548M	Behavioural Decision Theory in Health	5.0									
	GW4580M	Measurement of Patient Preferences Using Discrete Choice Experiments	5.0									
	GW4582M	Global Health Economics	5.0									
	GW4587M	Advanced Health Economic Modelling - *limited number of places available*	5.0									
	GW4575M	Pharmaceutical Pricing and Market Access (PPMH)	5.0									
	EWP02	Advanced Topics in Decision-making in Medicine	2.4									
	CE16	Using R for Decision Modeling, Simulation, and Health Technology Assessment	1.1									
	CE15	Advanced Decision Science Modeling	1.4									
		Advanced elective courses		13.7	16.0	18.0	19.0	5.0	18.9	18.2	16.1	
		Electives TOTAL EC points (max 2,8 extra points)		**19.4**	**16.0**	**18.0**	**19.0**	**15.0**	**18.9**	**18.2**	**16.1**	
		TOTAL EC points		**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**

Specialisations: EP = Epidemiology, CE = Clinical Epidemiology, GE = Genetic and Molecular Epidemiology (previously Genetic Epidemiology), PH = Public Health Epidemiology (previously Public Health), HEA = Health Economic Analysis, MP = Medical Psychology, Bstat = Biostatistics, HDS = Health Decision Sciences, Med = Medical students

**** 1.4 EC points = 1 week**

Year 1 = Aug year 1 until July (Aug-2019 until July-2020)
Year 2 = Aug year 2 until July (Aug-2020 until July-2021)

3.1.2. Clinical Research, 2 years full-time 2019-2020

	Research Master in Clinical Research - 120 EC points - 2019-2021					
	Calendar	**Course code**	**Course**	**EC**	**EC points* per specialisation**	
	COMMON CORE				**CR**	**Medical students**
	Aug 2019	ESP01	Principles of Research in Medicine and Epidemiology	0.7	0.7	0.7
	Aug-Sept 2019	CC01	Study Design	4.3	4.3	4.3
	Sept-Oct 2019	CC02	Biostatistical Methods I: Basic Principles	5.7	5.7	5.7
	Nov-Dec 2019	EP03	Biostatistical Methods II: Classical Regression Models	4.3	4.3	4.3
	Nov 2020-Jan 2021	SC07	Scientific Writing in English for Publication	2.0	2.0	2.0
	Sep 2019-Jun 2021	SEM	24 research seminars	0.8	0.8	0.8
	Sep 2019-Jun 2021	RM-LLS	Lifelong Learning Skills	2.0	2.0	2.0
			Common core TOTAL EC points	**19.8**	**19.8**	**19.8**
	REQUIRED				**CR**	**Med**
ESP YR 1	Aug 2019	ESP11	Methods of Public Health Research	0.7	0.7	0.7
	Aug 2019	ESP14	Clinical Trials	0.7	0.7	0.7
	Aug 2019	ESP65	The Practice of Epidemiologic Analysis	0.7	0.7	0.7
	Aug 2019	ESP70	Fundamentals of Medical Decision Making	0.7	0.7	0.7
FALL YR 1	Aug 2019	BST01	Review of Mathematics and Introduction to Statistics	1.0	1.0	1.0
	Oct 2019	CE01	Clinical Translation of Epidemiology	2.0	2.0	2.0
	Oct-Nov 2019	CE02	Clinical Epidemiology	3.7	3.7	3.7
	Nov 2019	EP01	Principles in Causal Inference	1.4	1.4	1.4

YEAR 2	Winter-Spring 2021	EWP03	Pharmaco-epidemiology and Drug Safety	1.9	1.9	1.9
	Winter-Spring 2021	EWP10	Advanced Topics in Clinical Trials	1.9	1.9	1.9
	Winter-Spring 2021	EWP13	Advanced Analysis of Prognosis Studies	0.9	0.9	0.9
	Winter-Spring 2021	EWP25	Principles of Epidemiologic Data-analysis	0.7	0.7	0.7
	Jan 2020-Jul 2021	RM.RES	Research	67.0	67.0	
	Jan 2020-Jul 2021	RM-RES-MED	Research (incl. Final Exam)	67.0		67.0
			Required TOTAL EC points		**83.3**	**83.3**
	ELECTIVES				**CR**	**Med**
			Advanced elective courses		16.9	16.9
			Electives TOTAL EC points (max 2,8 extra points)		**16.9**	**16.9**
			TOTAL EC points		**120.0**	**120.0**

Specialisations: CR = Clinical Research, Med = Medical students

*** 1.4 EC points = 1 week**

Year 1 = Aug year 1 until July (Aug-2019 until July-2020)
Year 2 = Aug year 2 until July (Aug-2020 until July-2021)

3.1.3 Infection & Immunity
Research master 2019-2020

Year 1	EC points
MSCII-101: First Summer Course	8.6
MSCII-116: Population Dynamics in Infection and Immunity	3.6
MSCII-115: Biomedical Research Techniques (BRT)	1.5
MSCII-108: SPSS	1.0
MSCII-109: Biomedical English writing	2.0
MSCII-119: PubMed, Endnote and 'Drown or not'	0.6
MSCII-114: Survival analysis	0.5
MSCII-104: Visiting research labs. Literature reading and orientation on research programs. Acquisition of specific knowledge of the areas of research	12.0
MSCII-105: First Winter Course	8.6
MSCII-E99: Elective courses 1	2.4
MSCII-118: Performing research in the area of choice. Visiting seminars, journal clubs, research discussions. Literature reading.	19.2
Total year 1	**60.0**

Year 2	
MSCII-201: Second Summer Course	8.6
MSCII-E99: Elective courses 2	4.4
MSCII-202: Performing research in the area of choice, stay abroad. Visiting seminars, journal clubs, research discussions. Literature reading.	15.0
MSCII-203: Second Winter Course	6.8
MSCII-E99: Elective courses 3	6.2

	MSCII-204: Performing research in area of choice, stay abroad. Visiting seminars, journal clubs, research discussions, literature reading. Writing rebuttal on reviews, writing and presentation MSc thesis.	19.0
	Total year 2	**60.0**
	Total	**120.0**

3.1.4 Molecular Medicine Curriculum 2019 – 2020

Course code	Name	EC points
MM-IW	Introduction Weeks	2.0
MM-DB	Developmental Biology	2.0
	DB - Review Presentation	1.0
MM-MBC-A	Molecular Biology of the Cell – A	5.0
MM-MBC-B	Molecular Biology of the Cell – B	5.0
MM-GEN	Genetics	4.0
MM-CRT-F	Contemporary Research Topics - Faculty sessions	4.0
MM-BOD	Biology of Disease	3.0
MM-RES1	Lab Research Project Year 1	24.0
MM-PS	Presentation Skills	2.0
MM-P1	Research Progress Presentation - YR1	2.0
MM-RW	Report Writing	2.0
	Research Report	4.0
Total Year 1		**60.0**

Course code	Name	EC points
MM-CS	Courses and Seminars	4.0
MM-LR	Literature Review	4.0
MM-PP	Writing a Project Proposal	2.0
MM-P2	Research Progress Presentation - YR2	2.0
MM-RES2	Lab Research Project Year 2	38.0
MM-MSTH	Master of Science thesis	8.0
	Master of Science thesis – Presentation	2.0
Total Year 2		**60.0**

MNEU-0.0	2016	Introductionweek	0	EC points
MNEU-1.0-16	2017	Computational Neuroscience	3	EC points
MNEU-1.1-15	2015	Nervous system	3	EC points
MNEU-1.2-15	2015	Neural signaling	3	EC points
MNEU-1.3-15	2015	Sensory system	3	EC points
MNEU-1.4-15	2015	Motor systems	3	EC points
MNEU-1.5-15	2015	Development	3	EC points
MNEU-1.6-15	2015	Neurological disorders	3	EC points
MNEU-1.7-15	2015	Plasticity and behaviour	3	EC points
MNEU-1.8-15	2015	Autonomic nervous and limbic system	3	EC points
MNEU-1.9-15	2015	Cognitive neuroscience	3	EC points
MNEU-1.10-15	2015	Psychiatric disorders	3	EC points
MNEU-1.11-15	2015	Scientific Writing	3	EC points
MNEU-1.12-16	2016	The Scientific Method	1	EC points
MNEU-1.13-17	2017	Preparation research proposal	13	EC points
MNEU-1.14-15	2015	Labtalks and seminars - jaar 1	2	EC points
MNEU-1.15-15	2015	Presentation research proposal *Assessment research proposal 4 EC (50%)* *Presentation (50%)*	8	EC points
		Total year 1	60	EC points

Cursus	Vanaf jaar	Korte naam	Minimum punten	
MNEU-2.		**Attend workshops of your choice** **Workshops are indicated below**	**10.0**	EC points
MNEU-2.3-16	2015	Neuro histology	2	EC points
MNEU-2.4-15	2015	Eye movements of mice and men	1	EC points
MNEU-2.6-15	2015	f-MRI analysis techniques	1	EC points
MNEU-2.7-15	2015	Linear systems	2	EC points
MNEU-2.8A-15	2015	Molecular neuro biology/Beginners	1	EC points
MNEU-2.8C-15	2015	Molecular neuro biology/Advanced	1	EC points
MNEU-2.9-15	2015	Neurocognition	1	EC points
MNEU-2.10-15	2015	Genetics and neurological diseases	1	EC points
MNEU-2.11-15	2015	Tools and therapy in psychiatry	1	EC points
MNEU-2.12-15	2015	Hippocampal field recording	1	EC points
MNEU-2.14A-15	2015	Introduction of Matlab/Beginners	1	EC points
MNEU-2.14A-15	2015	Data analysis with Matlab/Advanced	1	EC points
MNEU-2.16-15	2015	Neuro-informatics	1	EC points
MNEU-2.17-15	2015	Introduction to Labview	2	EC points
MNEU-2.18-15	2015	Nerve conduction studies	1	EC points
MNEU-2.19-18	2018	Brain simulation	1	EC points
MNEU-2.20-15	2015	Optical Imaging (Live cell microscopy)	2	EC points

Cursus	Vanaf jaar	Korte naam	Minimum punten	
MNEU-3.13-15	2015	Research project	38	EC points
MNEU-3.14-15	2015	Labtalks and seminars - jaar 2	2	EC points
MNEU-3.15-16	2017	Writing Master of Science thesis *Reseach proposal - 7 EC(70%)* *presentation - 3 EC (30%)*	10	EC points
		Total year 2	60	EC points

3.2 Internships and tutor allocation

3.2.1 Health Sciences and Clinical Research

After admission to the program the Health Sciences students are assigned a supervisor. Clinical Research students are allocated adviser tutor from the Advisory Board for Clinical Research. Together with the student the tutor looks for a research position and supervisor. The supervisor will supervise the student in his research program. The supervisor is preferably a professor or senior researcher. The supervisor can delegate the practical supervision to one of his employees, but remains ultimately responsible. In consultation with their supervisor and with the Program Directors students may be permitted to do an internship abroad.

3.2.2 Infection and Immunity

The students, if desired, are assigned a supervisor after admission to the program. This supervisor will supervise the student in his research internship. The supervisor is an assistant professor, an associate professor or a full professor. In principle the internships take place within the Erasmus MC. In consultation with the Program Director students can (preferably) follow two internships of six to twelve months that add up to 18 months together. As an alternative, they can take one eighteen-month internship, with a preference for part of it being followed at another lab. The first internship always takes place within the Erasmus MC in order to properly assess the practical skills of the student. In consultation with the Program Director the second of the two internships may be done in a Dutch institution other than Erasmus MC, or abroad. A (research) internship is only performed outside the Erasmus MC if it is necessary for progress of the research project and/or if it is in the student's interest. The institute where the student is going to should be of comparable scientific quality to the Erasmus MC. There should be sufficient guarantee that during the internship abroad the student can count on intensive support from the research supervisor within the institute where the student follows the internship. Furthermore, there must be sufficient expertise within the Erasmus MC in the field of research to which the internship relates.

3.2.3 Molecular Medicine

In the first year of the program, a tutor is assigned at the proposal of the student. The Program Director appoints the tutor(s) and ensures that regular meetings can take place between students and tutors during the program.

It is the tutors task to advice the student concerning matters of his MSc and his or her future carrier. The tutor may also function as supervisor for the internship, but this is not obligatory. Internships must be approved by the educational director. An internship abroad is only considered if it is necessary for progress of the research project and/or if it is in the student's interest. The foreign institution where the student is going to should be of comparable scientific quality to the Erasmus MC institutes participating in the Molecular Medicine program. There should be sufficient guarantee that the student can count on intensive supervision by the foreign research supervisor during the internship. An internship abroad will only take place in

year 2 of the program, and only when the student is following relevant courses of the Master of Science program.

3.2.4 Neuroscience

After a supervisor-student acquaintance period, a student-supervisor matching procedure is carried out where the NRMP (National Resident Matching Program) algorithm is used. The results of this matching procedure form the basis of the supervisor assignment. The supervisor is appointed by the Program Director (see general provisions). The appointment of the research supervisor will be valid for the entire duration of the course.

4 Education

4.1 Optional and compulsory education

4.1.1 Health Sciences and Clinical Research

For the students the courses as defined in the prospectus are compulsory components of the Research Master program. During the program, the students are also offered a selection of optional courses. Changes can be made to the student's program in consultation with the program coordinator of student affairs and with the approval of the Examination Board.

4.1.2 Infection and Immunity

All modules and workshops in the program are compulsory. Certain modules can be replaced by equivalent education elsewhere in consultation with the supervisor and with written approval from the Examination Board.

4.1.3 Molecular Medicine

All course components in the program are compulsory. Applications for exemption from course components are reviewed by the Examination Board if a written request is received from the student

4.1.4 Neuroscience

All modules in the program are compulsory. Changes can be made to the student's program in consultation with the Admissions and Assessment Committee and with the approval of the Examination Board. If the replacement education is followed with sufficient result then the EC point can be awarded for the workshops that were replaced on presentation of written proof. With regard to module followed elsewhere the related EC points count.

4.2 Exemption

The Examination Board may at the request of a student and after consultation with the Program Director and the relevant examiner waive a part of the program on the basis of knowledge or skills acquired in or outside of higher education

If the exemption is granted on the basis of education that is part of the Research Master Health Sciences or the Research Master Clinical Research, but that has been followed before the student was officially enrolled in the degree program, an exemption with retention of grade will be granted.

5 Practical information review

5.1 Registering for interim exams

5.1.1 Health Sciences, Clinical Research and Infection and Immunity.

The students are automatically registered for the first round of the interim exams. Students must keep an eye on the resit date for any interim exams and register themselves. The date will be announced via the electronic learning environment or per e-mail. If a student cannot take the exam for which he is enrolled, the student must report this to NIHES in advance. Without a deregistration, a "no show" will be registered as a result for the missed exam, and the exam counts as an opportunity.

5.1.2 Molecular Medicine and Neurosciences

The student is automatically registered for the relevant modules of the current academic year. Registering for individual modules and/or tests is not necessary.

5.2 Information about the form of an interim exam

An overview of the subjects that are examined can be found in the study guide and/or the electronic learning environment. The demands for and the form of the interim exam are at the latest on the first day of the course listed on the website, in the electronic learning environment and in Osiris.

5.3 Graduation requirements

Achieving 120 EC credits entitles the student to the degree of Master of Science in the specific domain of the Research Master.