Student Manual

2025-2026

Erasmus MC
University Medical Center Rotterdam

Master of Science in Molecular Medicine

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Images: *students, June 2025*
Photography: Marjoleine van Berckel Bik

Contents

Introduction

Developments in molecular and cell biology, such as studies on human genome variation and the control of stem cells, are reshaping many aspects of medical diagnosis and treatment. The rapid advancement of modern biomedical and computational technologies in this new century promises to provide many new tools to gain in-depth knowledge of the fundamental molecular and cellular mechanisms controlling health and disease.

The Erasmus MC **Master of Science in Molecular Medicine** program is a two-year, 120 EC, research master program, focusing on molecular cell biology, developmental biology, and molecular genetics. We aim to bring students to the forefront of current developments in biomedical science. In 1999, the course program was given for the first time to a group of Erasmus MC medical students; accreditation by the Dutch-Flemish Accreditation Organization (NVAO) followed in 2004, 2010, 2016 and was renewed in 2022.

The Erasmus MC departments clustered under Biomedical Sciences are responsible for the MSc Molecular Medicine program. Teachers, course directors, and chairpersons of the MSc program are leading scientists in the field of biomedical research and work in 20 different research departments within Erasmus MC. The MSc Molecular Medicine program functions in the context of the Erasmus MC Graduate School, the hub for Graduate programs at both Research Master and PhD level.

Many MSc graduates continue their careers as PhD students at Erasmus MC or elsewhere.

This manual is intended as a curriculum guide for our students and prospective students. We appreciate comments and suggestions for improvement.

Terms and definitions

Erasmus MC and Erasmus University:
Erasmus MC – University Medical Center Rotterdam is a combination of the academic general hospital, the Sophia children's hospital, the Cancer Institute, and the medical faculty educational and research institutes of Erasmus University Rotterdam (EUR). Erasmus MC currently has around 16,000 employees, more than 5,000 students, including students of medicine, nanobiology and clinical technology, and approximately 220 research master students, of which around 40 are enrolled in the MSc Molecular Medicine program.

Biomedical Sciences:
The Erasmus MC – Biomedical Sciences organizational unit comprises the research departments of Developmental Biology, Molecular Genetics and Neuroscience, as well as the Core Facilities Biomics, EDC (Experimenteel Dier Centrum), EMI (Experimental Medical Instrumentation), iPS (induced Pluripotent Stem Cell Facility), OIC (Optical Imaging Center). Biomedical Sciences organizes the MSc programs in Molecular Medicine and Neuroscience, and teaching for PhD students.

Erasmus MC Graduate School:
The Erasmus MC employs around 1800 PhD students (in the Netherlands, PhD students are regarded as employees and receive a salary with social benefits). PhD students as a rule perform a research project of four years, and then write up their thesis. In addition, they follow courses and receive research training. The PhD Graduate programs and the five Research Master programs of the Erasmus MC are embedded in the Erasmus MC Graduate School. The Graduate School is headed by the Scientific Director, the Vice Dean of Education. In addition, there is the Managing Director who is responsible for operational management within the Graduate School. The Graduate School is a platform for both existing education, as well as for new initiatives within the convergence of Erasmus MC with TU Delft and Erasmus University Rotterdam.

Faculty:
MSc Molecular Medicine faculty members are Erasmus MC research scientists with life science backgrounds in biology, biochemistry, and medicine.

Course directors:
Course directors are MSc faculty members, organizing and coordinating the various components of the MSc program.

Research supervisor:
The supervisor is the principal investigator of a research project performed by the student in year 1 or year 2. Since the research topic and lab of choice will change in the transition from year 1 to year 2, students will have two supervisors. The tutor (see below) does not need to be one of the supervisors.

Tutor:
The tutor is a faculty member who is appointed to guide the student throughout the course of the MSc program. The tutor acts as a personal mentor. Each student chooses a tutor from the list of faculty, or can propose additional names. It is possible to have two tutors, for example one with a basic/biomedical background and one with a clinical background.

Admissions committee:
The admissions committee is responsible for the admission of candidate students.
Members of the admissions committee are the chairpersons, the program director, and occasionally one of the course directors.

Examination Board: (*Examencommissie*):
The MSc examination board carries formal responsibility for the outcome of all exams of the program. There is one board for all bachelor and master programs (including medicine). There is a separate chamber of the examination board for the combined five Erasmus MC research master programs. The MSc examination board chair reports to the dean of Erasmus MC. The board will delegate specific responsibilities to the MSc Molecular Medicine admissions committee. *See also page 55-56.*

The Educational Committee Research Masters: (Opleidingscommissie research master opleidingen):
The Educational committee Research Masters (ECRM) consists of five MSc faculty members (including the committee chair) and five MSc students: one for each Erasmus MC research master. Chairpersons and program directors are excluded from this committee. The ECRM advises the program on matters relating to quality assurance of the program and approves the TER. *See also page 56.*

Aims and objectives

The goal of the two-year **Master of Science in Molecular Medicine** program is to educate students to become researchers in biomedical and translational medical research.

The MSc program is modelled after renowned international research master's programs, such as those at Yale or Harvard University, in which the students are required to take on independent research projects, while following a number of relevant theory courses.

The courses of year 1 will provide students with the basic intellectual and technical knowledge, and establish the important framework necessary for development of a research proposal and subsequent performance of laboratory research.

The research projects provide the hands-on experience in top research laboratories at the Erasmus MC, under the guidance of faculty members. During the laboratory periods students will develop technical skills and test their hypotheses. They will learn the principles of performing well-controlled experiments, and the interpretation, presentation, and publication of results.

On successful completion of all steps in the curriculum, including writing and defending the MSc thesis, the students are awarded the Master of Science Molecular Medicine degree.

1.1 Educational concepts

The following educational concepts are taken into consideration, when we determine the best way to offer course contents, and when student performance is evaluated:

1. Students have an active and self-directing attitude.
2. Students are taught in small groups.
3. Students work independently and collaboratively.
4. The program is embedded in a research environment.
5. In all parts of the program that involve (laboratory) practices, a master-apprentice relationship exists between the research supervisor and the student.
6. The study program has an open structure with ample choice between different areas of research.
7. Textbooks courses: students are offered the loan of some of these books. Reading materials are offered alongside with the evolving research training periods. Selected articles and presentations will be offered online (Canvas).
8. Theory classes and lab practices are offered both separately and integrally.
9. Through repetition and application, students are stimulated to keep on using once acquired knowledge and experience.

1.2 End goals

MSc Molecular Medicine (MScMM) focusses on the domain of molecular cell biology, developmental biology and genetics, in fundamental and translational research. The MScMM graduates can translate knowledge and understanding of these fields and the corresponding research methods and instruments into adequate research questions and perform hypothesis driven experiments to answer these questions. In addition, the students learn to comprehensively and adequately summarize scientific literature to provide background information as well as placing research findings in a proper context. These abilities provide a basis for original research.

In the program, the students apply their knowledge and understanding in two research projects and learn to formulate judgements that reflect their scientific and social responsibilities. The student's ability to communicate the background, experimental approach and the results of his/her research project performed during the program is tested by writing a research proposal and a research paper in a format suitable for submission to a peer reviewed international journal. Being able to master all different aspects relevant for performing high quality research ensures that students possess sufficient learning skills to allow them to continue their study in a self-directed, autonomous way.

The end goals of the Research Master Molecular Medicine have been described in eleven intended learning outcomes (ILOs). Upon completion of the Research Master Program MSc Molecular Medicine, students have acquired the following skills and knowledge:

Research knowledge and skills in Molecular Medicine

1. The student can rephrase and apply basic concepts that are necessary to provide context for the research activities in the domain of Molecular Medicine, including molecular-, cell- and developmental biology and genetics.
2. The student can readily and appropriately select and apply relevant research methods and instruments that are used in the field of Molecular Medicine to unravel fundamental biological processes and mechanisms of disease.
3. The student is able to find and critically evaluate scientific literature on methods and research in the domain of Molecular Medicine (including, but not necessarily limited to, the fields of molecular-, cell- and developmental biology and genetics), and summarize it to describe the state of the art.
4. The student is - under guidance - capable of developing adequate scientific research questions aimed at understanding a molecular mechanism and causal relationships in the field of Molecular Medicine, and can propose appropriate hypothesis-driven experiments that could answer these questions.
5. The student has the skills to adequately perform wet-lab biomedical research experiments; to collect, analyze and interpret the data; to correctly use a lab journal; to draw appropriate conclusions and design logical follow-up experiments.

Written and oral communication skills in Molecular Medicine

6. The student is capable of writing a scientific research project proposal in the field of Molecular Medicine - in line with the format of an international research proposal, and can identify relevant stakeholders from science, academia, industry and society.
7. The student is capable of writing a scientific manuscript based on the results obtained during a research project in the field of Molecular Medicine in line with the format of an international peer-reviewed journal; and can respond with an appropriate rebuttal to feedback from reviewers.
8. The student has the skills to effectively communicate scientific research in the field of Molecular Medicine in a well-structured and clear oral scientific presentation, geared towards expert scientific and lay public, and to adequately answer questions from the audience.

Personal and professional skills in Molecular Medicine

9. The student acts from sound scientific and ethical values and principles, and follows institutional regulations regarding quality and safety in laboratory practice.
10. The student is capable of short- and long- term research project planning, while taking care to preserve mental health, can work largely independently, is flexible and perseveres when results are unexpected or disappointing, and is aware of the need of life-long learning.
11. The student can effectively communicate and collaborate with other scientists in the field of Molecular Medicine; is open to constructive feedback and can provide constructive feedback to others; and has a curious, critical, creative, and problem-solving scientific attitude.

1.3 Dublin descriptors

The ILO's listed above are based on the end goals for the combined Erasmus MC research master's programs, and on the quality descriptors as adopted by the EU Joint Quality Initiative in 2004: the *Dublin descriptors*.

The Dublin descriptors are:

1. **Knowledge and understanding:**
   The student has demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with bachelor's level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context.
2. **Applying knowledge and understanding:**
   The student can apply her or his knowledge and understanding, and problem-solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of study.
3. **Making judgments:**
   The student has the ability to integrate knowledge and handle complexity, and formulate judgments with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of her or his knowledge and judgments.
4. **Communication:**
   The student can communicate her or his conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.
5. **Learning skills:**
   The student has the learning skills to allow her or him to continue to study in a manner that may be largely self-directed or autonomous.

The 11 ILOs of MSc Molecular Medicine intend to reflect the Dublin descriptors for academic programmes at master's level by presuming a degree of advanced knowledge and understanding and reflecting a greater level of independence. The emphasis on research skills as well as other academic skills testifies to the ILOs' academic orientation. The involvement of senior researchers and teachers with a leading international reputation in their field and a thorough grasp of the abilities to do research at master's level and beyond, ensures that the program is geared to the expectations of the professional field, the discipline, and international requirements.

1.4 Academic context

The Master of Science in Molecular Medicine is a two-year, 120 EC, research master program. Students are trained to become junior scientists, who upon graduation are instantly ready for a PhD position within any national or international biomedical research laboratory.

From the very beginning, students will be absorbed into the scientific environment of the biomedical research laboratories at Erasmus MC. In all courses of the program, students are guided, instructed and taught by MSc faculty members who are internationally recognized scientists and educators.

Affiliations with departments and Erasmus MC Graduate School

Teachers, course directors and chairpersons of the MSc Molecular Medicine program work in 20 different research departments within Erasmus MC: see pages 51-52-53 for details on our faculty. Together with the other four Research Master programs and the PhD Graduate program, MSc Molecular Medicine is embedded in the Erasmus MC Graduate School.

Comparison with other Erasmus MC research masters

Apart from the MSc Molecular Medicine, Erasmus MC has four other research master's programs:
MSc Health Sciences
MSc Neuroscience
MSc Infection and Immunity
MSc Genomics in Society

The MSc Health Sciences offers programs with a strong clinical perspective, especially attractive to students of medicine. The MSc program Genomics in Society trains genomics researchers considering the societal and ethical aspects of genomics. The MSc programs in Neuroscience and Infection & Immunity, like us, focus on basic biomedical research, but have a more specialized curriculum confined to the fields of neuroscience, and microbiology and immunology, respectively.

MSc Molecular Medicine students are given a broad view of possible lines of investigation, and are able to perform their research projects in many different labs of their choice, including labs at Erasmus MC departments that are generally associated with other MSc programs.

1.5 Collaborations

The MSc Molecular Medicine courses possess a theoretical and practical level of training that is comparable to the curricula of national and international MSc programs in the biomedical field. We have established partnerships with some of them:

Wageningen University and Research Center:	MSc Biotechnology
Radboud University Nijmegen:	MSc Molecular Mechanisms of Disease
University of Barcelona, Spain:	MSc Biology / Neurosciences
Université Pierre et Marie Curie, Paris, France:	MSc Molecular and Cellular Biology
Friedrich-Alexander-Universität, Nürnberg, Germany :	MSc Molecular Medicine
Georg-August-Universität, Göttingen, Germany:	MSc Biology

The collaborative agreement with **Wageningen University and Research Center** (WUR) gives students from the Wageningen MSc in Biotechnology the possibility to specialize in 'Molecular Medicine'. This specialization fills a gap in the Wageningen curriculum, where medicine-related research projects are not available to the students.

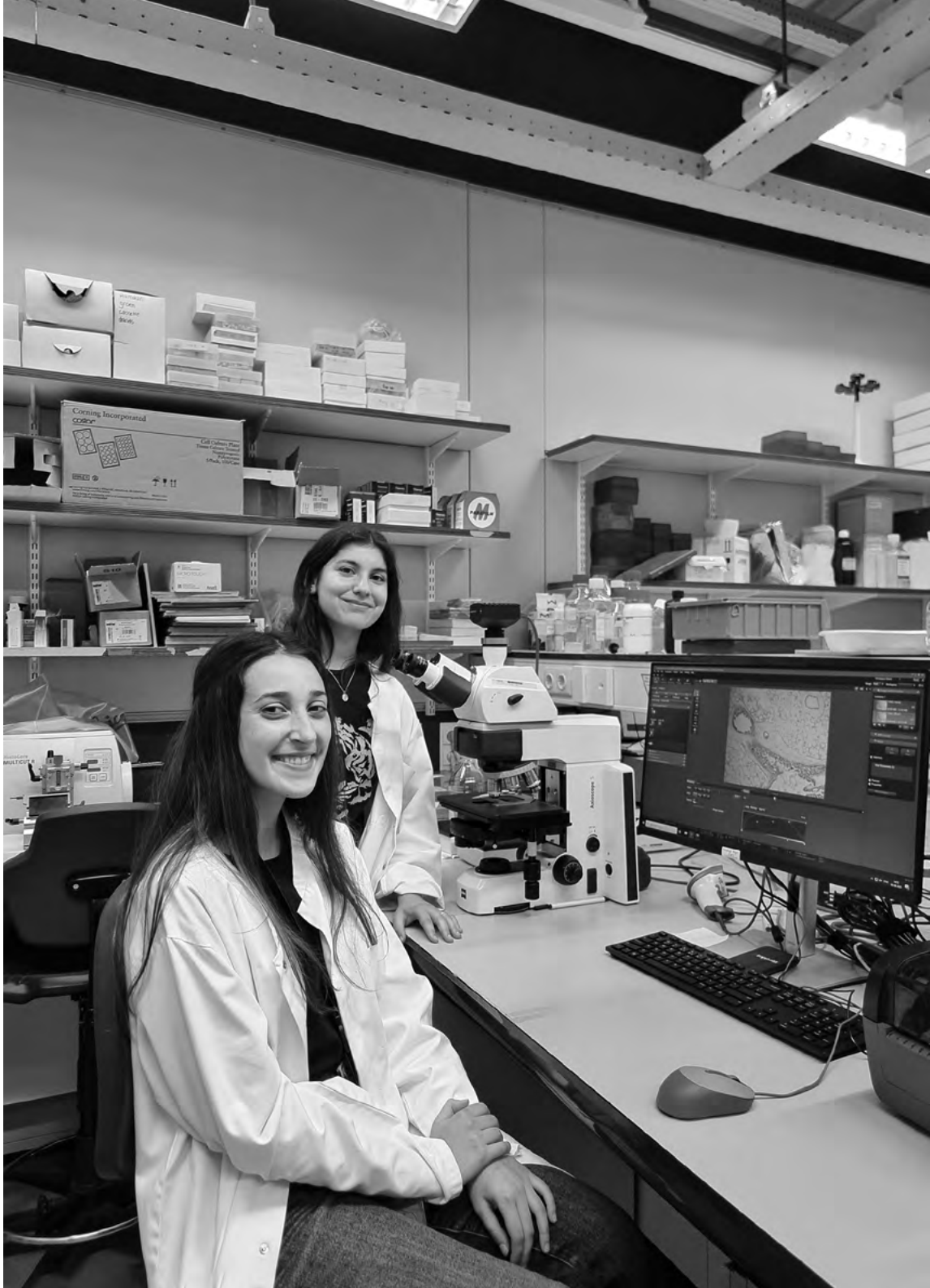
In co-operation with the MSc program in Molecular Mechanisms of Disease, at **Radboud University Nijmegen**, MSc Molecular Medicine students can take a selection of classes and courses in Nijmegen, and vice versa, in year 2 of the curriculum. Topics may vary from a course on science and society, to a course on epigenetics.

With **Paris**, **Barcelona**, **Nürnberg and Göttingen**, we have set up student exchange agreements. *See detailed info on page 48*.

1.6 Career prospects

After having completed the MSc program, the majority of students with a background in medicine (mostly from within the Erasmus MC) will further specialize in medicine, while maintaining an interest in biomedical science. Most medical students who received the MSc Molecular Medicine degree continue advanced research training as PhDs, at both basic and clinical research levels.

MSc Molecular Medicine students with a BSc in biochemistry, biotechnology, or biology, or a BASc in biomedical laboratory techniques, upon graduation appear to be preferred and highly qualified candidates for PhD positions within Erasmus MC, and other high-ranking and international research institutions.



Curriculum

2.1 Course overview

The 120 EC of the MSc Molecular Medicine program represent a total study load of 3,360 hours. An outline of the curriculum is given below:

Course Code	Name	EC	Hours
MM-PPD1	Personal and Professional Development Year 1	3	84
MM-MBC-A	Molecular Biology of the Cell part A	4	112
MM-MBC-B	Molecular Biology of the Cell part B	4	112
MM-GB	Genetics and Bioinformatics	4	112
MM-DB	Developmental Biology	4	112
	DB - Review Presentation	1	28
MM-CRT	Contemporary Research Topics	4	112
MM-BOD	Biology of Disease	2	56
MM-RES1	Lab Research Project Year 1	27	756
MM-P1	Research Progress Presentation - Year 1	2	56
MM-RW	Report Writing	1	28
	Research Report	4	112
	Total Year 1	**60**	**1680**
MM-PPD2	Personal and Professional Development Year 2	1	28
MM-STAT	Statistics	2	56
MM-CS	Courses and Seminars	4	112
MM-JC	Journal Clubs	2	56
MM-PP	Writing a Project Proposal	2	56
MM-P2	Research Progress Presentation - Year 2	2	56
MM-RES2	Lab Research Project Year 2	39	1092
MM-MSTH	Master Thesis	6	168
	Master Thesis - Presentation	2	56
	Total Year 2	**60**	**1680**

2.2 Program summary

Year 1

At the start of the program (1st week of September 2025), students will be introduced to a number of MSc faculty members, scientific group leaders, and MSc course directors and coordinators. These *Introduction Weeks* are part of the *Personal and Professional Development Year 1 course (MM-PPD1)* which also includes training on '*philosophy of science' and 'scientific integrity'* (separate course module "This Thing Called Science"), *Reflection Assignments* on the student's development, *Presentation Skills* and an *Alumni Event*. During the *Introduction Weeks* students have the opportunity to visit several of our research laboratories, to get a broader view of possible lines of investigation, and to get (further) acquainted with various research techniques. This will enable students to make an informed choice for the research projects ahead.

From September and October onwards, the *Molecular Biology of the Cell course* is given. We will start this course with *part A (MM-MBC-A)* in the period September. Part A explores the basic aspects of biology. Students will have lectures four times a week. The course requires thorough and continuous reading of the textbook. Students are stimulated to actively take part in discussions. The *MM-MBC-A* is followed by the *Molecular Biology of the Cell part B (MM-MBC-B)* in the period October. Both exams aim to test insight and scientific ability.

End of October and November onwards the *Genetics and Bioinformatics course (MM-GB)* is given to obtain a deeper theoretical understanding of genetic processes and bioinformatic tools available for their analysis. This course will highlight some of the developments in modern genetics research. Building upon the knowledge of classical (Mendelian) genetics, we will discuss several aspects of molecular genetic research on model organisms as well as patients. Topics discussed include bacterial genetics, genomes of higher eukaryotes, recombinant DNA technology, epigenetics, genomic imprinting, genomics and bioinformatics, molecular genetic technology in the clinic. The exam immediately follows the lecture series.

During the *Developmental Biology course (MM-DB)*, November, December and January onwards, students will learn about developmental biology from an evolutionary perspective. The evolution of complex multicellular organisms is based on genetic changes, which are translated into changes in embryonic and postnatal development. Students will learn about molecular and cellular mechanisms of embryonic development, and dysregulation of development, in animals and humans, in an evolutionary context. The written exam immediately follows the lecture series. Students will also prepare poster presentations on selected topics.

The *Contemporary Research Topics (MM-CRT) course* is given in weekly sessions throughout February to April (twice a week on average). The *CRT course* is setup as a journal club; a literature reading course.
Besides the research articles, some pages of the Molecular Biology of the Cell textbook should be studied, highlighting a technique or approach that is of importance to the paper.

Furthermore, there will be excursions to a number of labs, to get familiar with specific technical equipment and, in small groups, students prepare short presentations about particular techniques. Writing an article abstract is practiced during class. The course is concluded with a written examination with open questions on a research article that was not discussed previously.

The Biology of Disease course (MM-BOD) aims to give students a deeper insight into current problems in translational research, narrowing the gap between clinical and biological science and scientists. We will discuss several examples of translational research as it is running at Erasmus MC at this moment. This is meant as template for further discussion on demands/needs to set up a good translational research project.
After an introductory discussion on clinical needs ('a patient visits the doctor and what's next..''), we will discuss several examples of translational research in several topics from ongoing medical research. The session on the road from finding a target in the lab to clinical trials and introduction of a new drug in clinical practice offers insight in the long process of validation and implementation in a clinical setting.
In groups of 3-4 students, students will work on, and finally present, a possible translational research project in which they investigate the biological cause of an illness and how their data will be valorised (i.e. gets back to the patient again).
For the final course session, each of the groups will present a possible investigation strategy for a current clinical problem. These small projects will be presented to their fellow students and will stimulate them to think out of the box (and their own comfort zone).

Based on faculty presentations, lab rotations, and discussions with research supervisors and course directors, students will choose a topic and research group for a research project *(Lab Research Project Year 1, MM-RES1)*. At the end of this project (average duration will be 6 months) the results are written up in a research report *(see MM-RW*).

The aim of the *Presentation Skills (part of MM-PPD1)* is to practice organizing information for a concise and informative presentation and to practice oral presentations skills. In March students will have at least 3 *Presentation Skills* sessions.

Research Progress Presentation - Year 1 (MM-P1): In May/June students will present a 15 to 20 minutes talk on the progress of their research project, accompanied by PowerPoint slides.

Finally, in June-July students will write a scientific report: course *Report Writing (MM-RW)*. Based on the experiments conducted and results obtained during the first year research project in the lab, the student will write a scientific report. They will write up the results of their work in the form of a research article (manuscript) with the style used in PLOS Biology. This will include: Title, Abstract, Introduction, Methods (for this purpose in more detail than is currently standard in publications), Results, Discussion and References, accompanied by figures.

The completed report will be about 20-30 pages long. Prior to the writing of the report, students will have two class sessions to receive instructions and make preparations.

The theory courses of year 1 are designed to help students acquire the basic knowledge and capacities that they need to start the research projects they will be conducting as they proceed through the program. Most importantly, the courses aim to develop a sense of urgency to stay informed of new developments, and to acquire a life-long learning attitude. Without exception, theory courses are led by scientific MSc faculty.
The laboratory visits and the larger research projects, which together take up almost 18 months of the total two-year study program, are usually performed within the many basic and/or translational research laboratories that participate in the MSc program. When working and learning in the lab, students will be continuously guided and supported by the scientific group leader who acts as their direct supervisor.

Year 2

Year 2 of the program is almost entirely taken up by a second *Lab Research Project (MM-RES2)*. The laboratory, topic and research supervisor of the year 2 project will be different from those of the year 1 project. A new project proposal will have to be written, based on the interests of the student and the laboratory. Students will be trained in additional specific methods, and will carry responsibility on successful implementation of their research plan. Students should start looking for a new lab, new supervisor, and new topic in June of the preceding semester. The average duration of the research project for second year MSc students is 10 months.

The *Personal and Professional Development Year 2 course (MM-PPD2)* includes reflection assignments on the student's development, an individual midterm talk with the Year 2 coordinators, an Alumni event and a Career event.

In regular course meetings in October and November, you are educated on how to *write a scientific project proposal (MM-PP)*. You will develop a first draft of your own research proposal, describing the plan of work for the one-year period leading to the MSc thesis. The written research proposal will be prepared together with, and approved by, your research supervisor. This plan, agreed upon by both student and faculty, will be the basis for your research work leading to the MSc Molecular Medicine degree. The research proposal should describe the plan of work for a full-year period of research.
This will include: Title, Summary, Description of the proposed research, Knowledge utilisation, and Reference list (including figures as appropriate). These parts will be written in a step-wise manner. At each stage, the written parts will be evaluated by faculty on specific elements of scientific writing, as well as content, and revised accordingly. Students will also review and evaluate the completed proposals of two of their peers to provide comments, during a discussion session, before the final revision.

Students are encouraged to participate in *several courses, seminars, lectures, and symposia (MM-CS)* available at Erasmus MC or elsewhere. In consultation with their research supervisor and course directors, they may compose a program according to their individual needs and interests. Participation in an international meeting is to be considered.

Individually, students will present and critically discuss a scientific publication with their peers in a *Journal Club (MM-JC)*. Each student chooses and presents one research paper on a topic of interest within the wide field of biomedical science, selected from an international peer-reviewed scientific journal. An experienced faculty member will be available to guide the discussion.

In February students follow a PhD course on Statistics *(MM-STAT)*.

In March, halfway of the full-year research project, students will give a 20 minutes *research progress presentation (MM-P2)*, accompanied by a slideshow. The students from the first MSc year are invited to these presentations. The presentation should include a brief introduction to the project, information on specific experiments and methods, actual data and controls and a conclusion.

The second, full-year, research project is concluded by submission and defence of the *MSc thesis (MM-MSTH)*. The thesis will take the form of a full-length research article, suitable for publication in an international journal. In contrast to a regular article manuscript, the MSc thesis will include a more elaborate Introduction, describing the scientific background of the study; the Materials and Methods section will be expanded to include a complete and detailed description of all methods that have been applied; also, a List of Abbreviations will be added. The defence of the thesis will take about 15 minutes and will be preceded by an oral half hour presentation of aim, results and conclusions of the thesis work.

Once the MSc thesis is written, approved, and defended, students are awarded the Master of Science in Molecular Medicine degree. The *MSc graduation ceremony* is held at the end of every academic year, in the first week of September. Faculty, undergraduate students, and alumni are invited to this festive event.

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2.3 Course descriptions

General information for all courses:

Target group	MSc Molecular Medicine students
Organization	Erasmus MC – Biomedical Sciences
Language	English
Number of participants	15 – 20 students [1)]
Register	Courses are part of the MSc Molecular Medicine curriculum. Separate registration is not necessary for admitted students.
Absence	If you are unable to attend class, you are kindly requested to report your absence in advance, via mscmolmed@erasmusmc.nl
Accountability	Erasmus MC – Graduate School
Contact	Marjoleine van Berckel Bik E-mail: mscmolmed@erasmusmc.nl Phone: +31-10-7044844
Alumni	https://www.erasmusmc.nl/en/alumni

[1)] For the Lab Research Project Year 1 and Year 2: individual placement in lab of choice.

Detailed descriptions of each course module in the curriculum are given below. The applicable Dublin descriptors and end goals of the MSc program (*as listed on pages 11, 10 and 9, respectively*) are indicated by number.

Name	**Personal and Professional Development Year 1**
Form	Lectures, lab visits, E-learning, discussion, assignments, workgroup sessions, presentation practice.
Code	**MM-PPD1**
Aim	The course Personal and Professional Development serves to guide students through the MSc Molecular Medicine program and to support them in their personal and professional development, including their choices during the program and for their future career. In Year 1 this course consists of: - Introduction Weeks - Philosophy and Integrity in Science ("This Thing Called Science") - Reflection Assignments - Alumni Event - Presentation Skills
Coordination	Willy Baarends, Gert Jansen
Level	1st year MSc student
EC	3
Course load	84 hours
Exam	Attendance, completion of assignments, and active participation. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Evaluation	The MM-PPD1 organizers and MSc program coordinators are open for suggestions from course participants on possible improvements. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 3, 4, 5
End goals	8, 9, 11

Basic information on the Introduction Weeks

Form	Faculty presentations; introductory talks, lab visits.
Aim	To become acquainted with each other, as well as with the MScMM faculty members, research groups, and group leaders. To get an overview of research projects and research internship possibilities in the laboratories of our faculty members. To assign tutors, who can provide continuous feedback and advice throughout the curriculum.

Content	The faculty of the program (director, general coordinator, year 1 coordinator, and year 2 coordinator) will introduce themselves, and provide general information about the curriculum, and the overall organisation of the program. In addition, during separate presentations, group leaders from different departments will present work from their group and offer internship possibilities for MScMM students. Students can contact group leaders whose work fits their interest to organise a meeting or lab tour.
Literature	Literature relevant to the topics presented in the lectures.
Faculty	Various MSc faculty members.
Period	1st and 2nd week of September, 2025
Coordination	Willy Baarends, Gert Jansen, Gerben Schaaf, Marjoleine van Berckel Bik
Dublin descriptors	1, 3
End goals	11

Basic information on the course 'This Thing Called Science'

Form	Lectures / seminars / assignments / college tour / discussions.
Aim	To deepen knowledge of and reflect on scientific integrity.
Content	In this five-day course ("This Thing Called Science"), students are introduced to key themes on the topic of research integrity. During lectures and seminars students are exposed to various dilemmas that link to scientific integrity. Students will answer questions related to these dilemmas. In the classroom, students discuss what is science, cases related to integrity and the world of scientific publications and funding.
Duration	5 days
Period	4 sessions planned on September 2, 3, 8 and 15, 2025 1 session on June 11, 2026
Coordination	Martijn van der Meer
Faculty	Martijn van der Meer, Noortje Jacobs, Timo Bolt, Floor Haalboom, Katarina Bartekova, Diewertje Houtman, Claudia Cruz Oliviera, Florian van der Zee, Lieke Baas, Wytse van den Bosch, Kamil Hiralal.
Dublin descriptors	1, 3
End goals	9

Basic information on Reflection Assignments

Form	Reflection assignment, discussions.
Aim	To reflect on the personal and professional development of the student.
Content	Students reflect on their personal and professional development and their future in the MScMM program and beyond, using feedback from their year 1 research project supervisor halfway in the first year Research project, and their other (feedback) experiences (presentation skills, peer feedback, grades for their courses, motivation) in the program. In addition, students will get acquainted with MScMM alumni and their careers at an Alumni Event. Students will reflect on their goals for the future, both for the MScMM program and with respect to their future career.
Faculty	Various MSc faculty members.
Period	February - June 2026
Coordination	Willy Baarends, Gert Jansen
Dublin descriptors	1, 3, 4, 5
End goals	9, 11

Basic information on Presentation Skills

Form	Workgroup sessions, presentation practice.
Aim	To practice organizing information for a concise and informative presentation. To practice oral presentation skills.
Content	All students will give a short oral presentation on a pre-assigned topic. The presentation is not graded. The students will receive comments from the instructors and their peers to illustrate good presentation skills and provide positive-constructive suggestions for improvement.
Literature	Video**:** How to avoid death by Power Point Video: How to sound smart in your TEDx Talk Video: Designing effective scientific presentations (boring but useful) Paper: Naegle KM (2021) Ten simple rules for effective presentation slides. PLoS Comput Biol 17(12): e1009554. Website: How-to-give-a-dynamic-scientific-presentation
Faculty	Willy Baarends, Roberto Narcisi.
Period	3 workgroup sessions in March, 2026
Coordination	Willy Baarends, Roberto Narcisi
Dublin descriptors	4
End goals	8

▪

Name	**Molecular Biology of the Cell - part A**
Form	Textbook course.
Code	**MM-MBC-A**
Aim	To lay foundations of knowledge, and to deepen knowledge of molecular and cell biology.
Content	The textbook course Molecular Biology of the Cell delves into the basic aspects of biology. Students will have lectures by various faculty members, four times a week. Students are expected to thoroughly study the textbook, and to actively take part in discussions. In broad outlines, the MM-MBC part A and B courses together will move from DNA and proteins to regulation of gene expression and control of cellular functions, finally leading to consideration of more complex systems and problems. MM-MBC-part A will focus on Alberts chapters 1, 2, 3, 5, 6, 10, 12, 16 and 17. The course is followed by the continued course part B.
Literature	Alberts et al., Molecular Biology of the Cell (7th edition 2022).
Faculty	Thamar van Dijk, Andrea Lolli, Titia Sixma, Fabio Catalano, Arnab Ray Chaudhuri, Nitika Taneja, Jeffrey van Haren, Andrea Conidi.
Level	1st year MSc students
EC	4
Course load	112 hours
Exam	Written exam. The exam will contain open essay questions. You will not be allowed to use the textbook during the exam. The exam aims to test your insight and scientific inventiveness. The exam will be assessed by at least two MSc faculty members. You will receive a grade on a scale from 1 (worst) to 10 (best). Upon completion of this course, if you have attended and actively participated in at least 80% of the classes, and when you have passed the written exam, you are awarded 4 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	September to October, 2025
Coordination	Thamar van Dijk, Andrea Lolli
Evaluation	The MBC part A course and MSc program coordinators are open for suggestions from course participants on possible improvements. Students will receive an invitation for an online survey on the contents and setup of the course. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 5
End goals	1, 2

▪

Name	**Molecular Biology of the Cell part B**
Form	Textbook course.
Code	**MM-MBC-B**
Aim	Deepening knowledge in molecular and cell biology.
Content	The textbook course Molecular Biology of the Cell delves into the basic aspects of biology. Students will have four lectures per week, in total 10 lectures. Students are expected to thoroughly study the textbook, and to actively take part in discussions. In broad outlines, the MM-MBC part A and B course together will move from DNA and proteins to regulation of gene expression and control of cellular functions, finally leading to consideration of more complex systems and problems. This course part B focuses on Alberts chapters 4, 7, 12, 13, 14, 15, 16, and 22. The course is preceded by the MBC course part A.
Literature	Alberts et al., Molecular Biology of the Cell (7th edition 2022).
Faculty	Thamar van Dijk, Andrea Lolli, Jeffrey van Haren, Alessandro Iuliano, Raymond Poot, Kerstin Wendt.
Level	1st year MSc students
EC	4
Course load	112 hours
Exam	Written exam. The exam will contain open essay questions. You will not be allowed to use the textbook during the exam. The exam aims to test your insight and scientific inventiveness. The exam will be assessed by at least two MSc faculty members. You will receive a grade on a scale from 1 (worst) to 10 (best). Upon completion of this course, if you have attended and actively participated in at least 80% of the classes, and when you have passed the written exam, you are awarded 4 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	October 2025
Coordination	Thamar van Dijk, Andrea Lolli
Evaluation	The MBC part B course and MSc program coordinators are open for suggestions from course participants on possible improvements. Students will receive an invitation for an online survey on the contents and setup of the course. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 5
End goals	1, 2

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Name	**Genetics and Bioinformatics**
Form	Textbook course lectures, workgroup sessions, and self-study.
Code	**MM-GB**
Aim	To obtain a deeper theoretical understanding of genetic processes and bioinformatic tools available for their analysis.
Content	This course will highlight some of the developments in modern genetics research. Building upon the knowledge of classical (Mendelian) genetics, we will discuss several aspects of molecular genetic research on model organisms as well as patients. Topics discussed include bacterial genetics, genomes of higher eukaryotes, recombinant DNA technology, epigenetics, genomic imprinting, genomics and bioinformatics, molecular genetic technology in the clinic.
Literature	Introduction to Genetics: A Molecular Approach, Terry Brown. Molecular Biology of the Cell, Alberts et al. (7th edition 2022). Additional reviews and other course materials will be made available during the course.
Faculty	Dik van Gent, Jeroen Essers, Stefan Barakat, Sreya Basu, Ruben Boers, Manfred Kayser, Eskeatnaf Mulugeta.
Level	1st year MSc students
EC	4
Course load	112 hours
Exam	Written exam. The exam will contain open essay questions. Students will not be allowed to use the textbook during the exam. The exam aims to test your insight and scientific inventiveness. The exam will be assessed by at least two MSc faculty members. Students will receive a grade on a scale from 1 (worst) to 10 (best). Upon completion of this course, if students have attended and actively participated in at least 80% of the classes, and when students have passed the written exam, they are awarded 4 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	October-November, 2025
Coordination	Dik van Gent, Eskeatnaf Mulugeta
Evaluation	The Genetics course and MSc program coordinators are open for suggestions from course participants on possible improvements. At the end of the semester, students will receive an invitation for an online survey on the contents and setup of the course. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 5
End goals	1, 2

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Name	**Developmental Biology**
Form	Lectures, presentation assignment, workshops, excursion.
Code	**MM-DB**
Aim	The aim of this course is to provide insights in the molecular and cellular mechanisms of development, with emphasis on the classic model organisms, such as Drosophila, C. elegans and Xenopus. In addition, some of the experimental methods that have been and can be used to decipher development will be discussed.
Content	The evolutionary biologist Theodosius Dobzhansky emphasized that “nothing in biology makes sense except in the light of evolution”. This is particularly true for embryonic development. In this course, we will study evolutionary developmental biology. The students will learn how different species, from worms to flies and vertebrates, provide complementary 'model systems' with specific advantages and disadvantages for experimental analysis of developmental pathways and mechanisms. Indeed, research within Erasmus MC targets animal species at diverged branches of the evolutionary tree. In this course, the students will also gain an understanding of developmental aspects of cellular pluripotency and differentiation, in the context of stem cell research.
Literature	Principles of Development, Wolpert and Tickle, sixth Edition. Molecular Biology of the Cell, Alberts et al. (7th edition 2022).
Faculty	Robbert Rottier, Willy Baarends, Thamar van Dijk, Joost Gribnau, Gert Jansen, and others.
Level	1st year MSc student
EC	5
Course load	140 hours
Exam	Written exam (4 EC) with closed and open questions on the topics discussed during the lectures and in the textbook. The written exam will be assessed by two MSc faculty members. Students will receive a grade on a scale from 1 (worst) to 10 (best). After the assessment, the written examination is discussed with the student. Presentation (1 EC): Teams of 3 Students will prepare a presentation about a specific topic within the field of evolutionary developmental biology. A list of candidate topics will be provided. The presentation will be graded by three MSc faculty members. Upon completion of this course, if students have attended and actively participated in at least 80% of the classes, and when they have passed the written exam and successfully given a presentation, they are awarded 5 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	November 2025 to January 2026
Coordination	Robbert Rottier, Thamar van Dijk

Evaluation	The Developmental Biology course organizers and MSc program coordinators are open for suggestions from course participants on possible improvements. Students will receive an invitation for an online survey on the contents and setup of the course. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors End goals:	1, 2, 4, 5 1, 2, 8

▪

Name	**Biology of Disease**
Form	Lectures, discussion/brainstorm, presentation assignment.
Code	**MM-BOD**
Aim	Gain insight into current problems in translational research, seen from the perspective of the life scientist as well as the clinician. Course is aimed to discuss the demands/needs to perform successful translational bench research that really gets back to the patients. Establish a deeper understanding between the viewpoints of students with a biology background and those of students with a medical background. Offers an overview of experimental design and clinical needs to students with a non-medical background.
Content	The Biology of Disease course aims to give students a deeper insight into current problems in translational research, narrowing the gap between clinical and biological science and scientists. We will discuss several examples of translational research as it is running at Erasmus MC at this moment. This is meant as template for further discussion on demands/needs to set up a good translational research project. After an introductory discussion on clinical needs (‘a patient visits the doctor and what’s next..’’), we will discuss several examples of translational research in several topics from ongoing medical research. The session on the road from finding a target in the lab to clinical trials and introduction of a new drug in clinical practice offers insight in the long process of validation and implementation in a clinical setting. In groups of 3-4 students, students will work on, and finally present, a possible translational research project in which students investigate the biological cause of an illness and how their data will be valorized (i.e. gets back to the patient again). To achieve the goal of making a successful translation of a problem ‘from bench to bed-side’, and vice versa, the students with a medical degree will team up with students who have an educational background in life sciences. At the end of each session, students will meet their fellow students in a small group to discuss how the new insights that were presented during that day’s course session can be implemented in their research project.

	For the final course session, each student of the group will present a possible investigation strategy for a current clinical problem. These small projects will be presented to their fellow students and will stimulate students to think out of the box (and their own comfort zone).
Literature	Literature on various topics to be distributed during the course.
Faculty	Martin van Royen, Chris Bangma, Ferry Eskens, Nick Wlazlo, Gerben Schaaf, Nadine van der Beek, Ralph Stadhouders, Gert-Jan Braunstahl, Luc van der Laan, Victorien Verschuer, and others.
Level	1st year MSc students
EC	2
Course load	56 hours
Exam	Presentation: Students will prepare a presentation about a current translational research question. The presentation will be graded by the MSc faculty members and the individual contribution to the presentation and discussion will be graded. Upon completion of this course, if students have attended and actively participated in the classes, and when they have successfully given a presentation, they are awarded 2 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	April/May, 2026
Coordination	Martin van Royen, Gerben Schaaf
Evaluation	The Biology of Disease course organizers and MSc program coordinators are open for suggestions from course participants on possible improvements. Students will receive an invitation for an online survey on the contents and setup of the course. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 3, 4, 5
End goals	2, 3, 4, 8, 11

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Name	**Contemporary Research Topics**
Form	Journal Club – literature reading course.
Code	**MM-CRT**
Aim	Students will learn to critically read scientific publications within a restricted time frame, and identify strengths and weaknesses of the research presented in these articles. Students will gain insight into strategies, complications, and new developments in life sciences research, and the connection of the research to molecular medicine.
Content	The Contemporary Research Topics course is setup as a journal club; a literature reading course. A number of research papers will be discussed by faculty members. Besides the research articles, some pages of the Molecular Biology of the Cell textbook should be studied, highlighting a technique or approach that is of importance to the paper. For some techniques, an excursion to the technical equipment is included. In small groups, students prepare short technique presentations. Writing an article abstract is practiced during class. There are course sessions twice a week.
Literature	A selection of relevant research articles. Alberts et al., Molecular Biology of the Cell (7th edition 2022): selected chapters.
Faculty	Derk ten Berge, Jeroen Essers, Guido Jenster, Wim Mandemakers, Jurgen Marteijn, Raymond Poot, Gerben Schaaf, Christopher Schliehe Ralph Stadhouders and others.
Level	1st year MSc students
EC	4
Course load	112 hours.
Exam	Written examination. The course is concluded with a written examination with open questions on a research article that was not discussed previously. The original title and abstract of the article are not given: students are asked to propose a title and write the abstract. Apart from this, the exam will contain specific questions on the design of the study and the interpretation of the results, as described in the article. The written exam will be assessed by at least two MSc faculty members. Students will receive a grade on a scale from 1 (worst) to 10 (best). Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC. Upon completion of this course, if students have attended and actively participated in at least 80% of the classes, and when they have passed the written exam, you are awarded 4 EC.

Period	February to May, 2026
Coordination	Derk ten Berge, Raymond Poot
Evaluation	The CRT-F course and MSc program coordinators are open for suggestions from course participants on possible improvements. At the end of the semester, you will receive an invitation for an online survey on the contents and setup of the course. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors End goals	1, 2, 3, 4, 5 1, 2, 3, 7, 8, 11

▪

Name	**Lab Research Project Year 1**
Form	Practical training; research project in lab of choice.
Code	**MM-RES1**
Aim	To obtain practical experience in laboratory research, to collect scientific data, to practice communication skills, master research techniques, and further develop scientific thinking and reasoning.
Content	The first year research project will take approximately six months, and is conducted in a host research laboratory of the student's choice, within any Erasmus MC department involved in basic (biomedical) science. The laboratory scientific group leader functions as the direct supervisor. While in the lab, students will obtain practical experience in laboratory research, collect scientific data, practice communication skills, master research techniques, and further develop scientific thinking and reasoning.
Literature	Literature relevant to the research topic.
Faculty	Various MSc faculty members.
Level EC Course load	1st year MSc students 27 756 hours
Exam	Assessment by research lab supervisor. Evaluations are made as written performance assessments, by the involved lab supervisors. If students have successfully completed their lab project, they will be awarded 27 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	November, 2025 to June 2026
Coordination	Willy Baarends, Gert Jansen

Evaluation	The MSc program coordinators are open for suggestions from course participants on possible improvements. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors End goals	1, 2, 3, 4, 5 1, 2, 3, 4, 5, 9, 10, 11

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Name	**Research Progress Presentation - Year 1**
Form	Oral presentation
Code	**MM-P1**
Aim	To practice organizing experimental data for a concise and informative presentation. To practice communicating experimental results and their interpretation. To present information on background and methods appropriate to time and audience. To provide an update on what students are doing in their research project.
Content	Students should prepare an oral presentation in a work discussion style, sharing in some detail the methods used, the controls applied, and actual data obtained so far in their 1st year research project. The oral presentation will be evaluated on the basis of clarity, organization, content, presentation, the use of visual aids, and preparation. Special attention is given to the use of spoken English. Students will not be evaluated on the degree to which they have achieved the experimental goals set out in their proposal. This is a chance to work on giving a presentation to scientists outside of their research group and to get some constructive feedback.
Faculty	Willy Baarends, Roberto Narcisi, Thamar van Dijk, Kerstin Wendt and others.
Level EC Course load	1st year MSc student 2 56 hours
Exam	Students should give a 15 to 20 minutes talk on the progress of their 1st year research project, accompanied by PowerPoint slides. The evaluation will be based on clarity, organization and presentation aspects. Separate numerical grades are for the oral presentation and the slides (or other visual aids) with attention to clarity, organization and content. These two scores are averaged for an overall grade. The oral presentation will be assessed by at least two MSc faculty members. Students will receive a grade on a scale from 1 (worst) to 10 (best). Once they have given their presentation with sufficient results, and if they have attended at least 80% of the presentations of their peers, they are awarded 2 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.

Period	Individual presentations in May/June, 2026
Coordination	Willy Baarends, Roberto Narcisi
Evaluation	Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 4
End goals	8
	▪
Name	**Report Writing**
Form	Workgroup sessions, written report assignment.
Code	**MM-RW**
Aim	To organize the work as one would for publication. To understand the parts of a written research article and present the work in this way. To develop skills in scientific writing; including technical aspects of preparing figures and referencing and dividing the relevant information into Abstract, Introduction, Results and Discussion sections. To produce a final written summary of the research work that has been done.
Content	Based on the experiments conducted and results obtained during the first year research project in the lab, students will write a scientific report. They will write up the results of their work in the form of a research article (manuscript) with the style used in PLOS Biology. This will include: Title, Abstract, Introduction, Methods (for this purpose in more detail than is currently standard in publications), Results, Discussion and References, accompanied by figures. The completed report will be about 20-30 pages long. Prior to the writing of the report, students will have two class sessions to receive instructions and make preparations.
Literature	*The Elements of Style, 4th Ed* W. Strunk Jr. and E.B. White, Longman Publishers, 2000 *How to Publish in Biomedicine* Jane Fraser, Radcliffe Medical Press, 1997, (optional) *How to Write & Publish a Scientific Paper, 5th Ed* Robert A. Day, Oryx Press, 1998, (selected chapters) *The Netherlands Code of Conduct for Scientific Practice* General Board of the Association of Universities (Algemeen Bestuur van de Vereniging van Universiteiten) January 1, 2005 *On Being a Scientist, Responsible Conduct in Research* Committee on Science, Engineering, and Public Policy; National Academy Press, 1995

Faculty	Willy Baarends, Thamar van Dijk, Jeffrey van Haren, Andrea Lolli, Roberto Narcisi, Kerstin Wendt, and others.
Level	1st year MSc student
EC	5
Course load	140 hours
Exam	The writing assignment will be guided by the supervisor of the student and then, after approval, evaluated by faculty. The comments of the faculty should be implemented in the final version, which should be accompanied with a rebuttal, stating the response to the comments received. Procedure for grading Report Writing: The final report is graded by the reviewer as well as by the supervisor, using the Reviewer and Supervisor rubric, respectively. Students can have a look at these rubrics online. The final grade is determined by the weighted average of the grades assigned by supervisor (1/3) and reviewer (2/3) (based on first version, final report and rebuttal). However, if the difference in grade between supervisor and reviewer is more than 1, and/or only one of the two proposes a grade lower than 5.5, the supervisor and reviewer need to reach consensus, so that the difference between the two becomes less than 1, and either both or none propose a grade lower than 5.5. If agreement is not reached a third reviewer grades the report according to the Reviewer rubric, taking also the comments of the first reviewer and supervisor into account, and decides on the grade. A final average final grade of 5.5 or higher is sufficient to pass the course. Students will receive a grade on a scale from 1 (worst) to 10 (best). Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC
Period	June/July, 2026 (two class sessions with Willy Baarends, Jan. 26 and Febr. 9, 2026) Deadlines Report Writing: Friday, June 26, 2026 — hand in report version approved by your supervisor Friday, July 3, 2026 — receive comments from faculty Friday, July 10, 2026 — submit Final Report and Rebuttal for grading
Coordination	Willy Baarends
Evaluation	The Report Writing course and MSc program coordinators are open for suggestions from course participants on possible improvements. Course adjustments can be made on the basis of your direct feedback. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 3, 4, 5
End goals	3, 6, 9, 11
	▪

Name	**Personal and Professional Development Year 2**
Form	Lectures, E-learning, discussion, assignments, workgroup sessions
Code	**MM-PPD2**
Aim	The course Personal and Professional Development serves to guide students through the MSc Molecular Medicine program and to support them in their personal and professional development, including their choices during the program and for their future career. In Year 2 this course consists of: - Integrity in Science - Reflection Assignments - Midterm talk with MScMM Year-2 course directors - Alumni Event - Career Event
Coordination	Gerben Schaaf, Gert Jansen
Level	2st year MSc student
EC	1
Course load	28 hours
Exam	Attendance, completion of assignments, and active participation. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Evaluation	The MM-PPD2 organizers and MSc program coordinators are open for suggestions from course participants on possible improvements. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 3, 4, 5
End goals	8, 9, 11

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Name	**Statistics**
Form	Lectures and assignments.
Code	**MM-STAT**
Aim	After completing the course, students should be able to: Understand the difference between descriptive and inferential statistics. Understand the basics of hypothesis testing and p-values. Be familiar with the most important statistical tests for comparing groups and regression analysis such as chi-square, t-test, linear and logistic regression. Understand the underlying assumptions and limitations of these techniques. Be able to perform basic statistical analysis in SPSS or R and interpret the results.
Content	This course provides an introduction to statistics for medical research. Without focusing too much on the underlying mathematics, students will learn the most important concepts, statistical tests and software to be able to perform statistical analyses. Additionally, they will obtain skills to help them conduct responsible science and critically read study protocols and published papers.
Literature	Literature relevant to the topics presented in the lectures.
Faculty	Various
Level	2nd year MSc student
EC	2
Course load	56
Exam	The course ends with an assignment that will be judged by MScMM faculty. If students have attended and actively participated in the course and obtained a “sufficient” for the final assignment, they will be awarded 2 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	February 2026
Coordination	Gert Jansen, Gerben Schaaf
Evaluation	Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 3
End goals	2, 5, 9

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Name	**Courses and Seminars**
Form	Selection of courses, seminars, lectures, and symposia available within and outside the Erasmus MC. Participation in weekly lab meetings and journal clubs.
Code	**MM-CS**
Aim	To develop skills in gathering information and knowledge from the attendance of scientific seminars and related events.
Content	Students are encouraged to participate in several courses, seminars, lectures, and symposia available at or outside the Erasmus MC (specific courses, seminars and symposia are organized by the research school MGC and the Graduate School Erasmus MC). In consultation with their research supervisor, they will compose a program according to their individual needs and interests. Participation in an international meeting is to be considered. Following lectures on topics outside the field of their project but with the Molecular Medicine program is recommended.
Literature	Various
Faculty	Various
Level	2nd year MSc student
EC	4
Course load	112
Exam	Toward the end of the academic year, students will compile a list of all followed courses, seminars, lectures and symposiums. The list is examined and approved by MSc faculty. The compiled list of attended courses and seminars will be reviewed by Gert Jansen and Gerben Schaaf. If students have attended and actively participated in the required number of courses and seminars, they are awarded 4 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	Throughout the year 2025-2026
Coordination	Gert Jansen, Gerben Schaaf
Evaluation	Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 4, 5
End goals	1, 2, 8

Overview

Lab and departmental meetings (max 1 EC)
Students will attend weekly meetings of their lab and department and actively contribute to these meetings by asking questions and presenting their own work. Weekly participation at these meetings accounts for 1 EC.

Journal clubs (max 1 EC)
Students will attend journal club sessions of their lab group or department and actively contribute to these meetings by reading the articles, asking questions and, importantly, by discussing a scientific article themselves. Participation in at least 10 journal club sessions, including discussing at least one article of themselves, accounts for 1 EC.

Courses (max 2 EC)
Students can attend one or more courses, e.g. offered by one of the PhD programs of the Erasmus MC. A maximum of 2 EC of the EC obtained at the course(s) can be used for the MM-CS course.

Seminars and Meetings (at least 1 EC, max 3 EC)
Students will attend lectures at or outside the Erasmus MC on topics that fit within the scope of the MSc Molecular Medicine program. Students should gather at least 1 EC and maximally 3 EC by following lectures and/or meetings to be used for the MM-CS course.
Throughout the year, various departments arrange regular seminars with well-known scientists speaking on topics concerning biomedical research and advances. These include different lecture series within the Biomedical Sciences (Erasmus MC Lecture Series on Biomedical Science, Lectures on Molecular Genetics, Lectures on Neuroscience), as well as the Hematology Lectures, Oncology Lectures, Clinical Genetics Lectures. Students are free to choose from any of these lectures.
In addition, the Graduate School Erasmus MC, research school MGC, other postgraduate schools and other organizations organize one or more-days scientific meetings that students can attend. Some of these meetings may involve fees.

List of Courses and Seminars
The MSc Molecular Medicine program has a small budget for students who want to participate in particular courses or seminars. Before registering, please discuss your plans with the coordinators of the MM-CS course.
Toward the end of the academic year, students will compile a list of all followed courses, seminars, and lectures. The list is examined and approved by faculty.

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Name	**Journal Club**
Form	Journal Club – literature reading, presenting and discussing course.
Code	**MM-JC**
Aim	Students will learn to critically read scientific publications within a restricted time frame, and identify strengths and weaknesses of the research presented in these articles. Students will gain insight into strategies, complications, and new developments in life sciences research, and the connection of the research to molecular medicine.
Content	In this course, each student chooses, prepares and presents one article to the rest of the group, leading to an interactive discussion (journal club format). In this way, a number of research papers will be read and discussed by the student and the fellow students.
Literature	Each student chooses a research article for the presentation and gets permission to present this paper from the course coordinators.
Faculty	Dik van Gent, Andrea Lolli
Level	2nd year MSc student
EC	2
Course load	56 hours
Exam	Oral presentation: students will present a research article of choice to their peers. The oral presentation will be assessed by at least two MSc faculty members. Students will receive a grade on a scale from 1 (worst) to 10 (best). Upon completion of this course, if the students have attended and actively participated in the classes, and have given their presentation with sufficient results, they are awarded 2 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	There will be 5 course sessions (December 2025 to February 2026)
Coordination	Dik van Gent, Andrea Lolli
Evaluation	The Journal Club course and MSc program coordinators are open for suggestions from course participants on possible improvements. Course adjustments can be made on the basis of your direct feedback. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 3, 4, 5
End goals	3, 8

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Name	**Writing a Project Proposal**
Form	Workgroup sessions and writing assignment.
Code	**MM-PP**
Aim	Upon completion of this course the student will be able to: 1. find scientific literature and summarize it in written scientific English to provide background information on the topic to be studied in the research project 2. describe the main scientific question, and specific objectives, that will be addressed 3. identify and describe the scientific impact and innovative aspects of the research project 4. describe a realistic experimental approach and time plan to answer the research question 5. describe how possible knowledge utilization of the expected results of the research project can be achieved in a step-wise manner 6. combine all the above products into a research project proposal with figures and references such as those prepared in order to obtain funds from granting agencies 7. evaluate a proposal from peers and propose improvement during an evaluation meeting 8. incorporate feedback to improve the scientific proposal.
Content	In regular course meetings October and November, students are educated on how to write a scientific proposal. They will develop a first draft of their own research proposal, describing the plan of work for the one-year period leading to the MSc thesis. The written research proposal will be prepared together with, and approved by, their research supervisor. This plan, agreed upon by both student and faculty, will be the basis for the student's research work leading to the MSc Molecular Medicine degree. The research proposal should describe the plan of work for a full-year period of research. This will include: Title, Summary, Description of the proposed research, Knowledge utilization, and Reference list (including figures as appropriate). These parts will be written in a step-wise manner. At each stage, the written parts will be evaluated by faculty on specific elements of scientific writing, as well as content, and revised accordingly. Students will also review and evaluate the completed proposals of two of their peers to provide comments, during a discussion session, before the final revision. Special attention is given to the use of spoken and written English. The research proposal should be submitted by begin December.
Literature	*The Elements of Style, 4th Ed* W. Strunk Jr. and E.B. White, Longman Publishers, 2000 *How to Publish in Biomedicine* Jane Fraser, Radcliffe Medical Press, 1997, (optional)

	How to Write & Publish a Scientific Paper, 5th Ed Robert A. Day, Oryx Press, 1998, (selected chapters) *The Netherlands Code of Conduct for Scientific Practice* General Board of the Association of Universities (Algemeen Bestuur van de Vereniging van Universiteiten) January 1, 2005 *On Being a Scientist, Responsible Conduct in Research* Committee on Science, Engineering, and Public Policy; National Academy Press, 1995
Faculty	Gerben Schaaf, Esther Baart, Thamar van Dijk, Hélène Gleitz - Broeders, Jeffrey van Haren, Andrea Lolli, Christopher Schliehe and Kerstin Wendt.
Level	2nd year MSc student
EC	2
Course load	56 hours
Exam	The writing assignment will be evaluated by faculty at each stage to provide comments for correcting, revising and improving the proposal. The complete draft will be reviewed by 2 other students in the class to provide additional comments for revision. The evaluation of the final written research proposal assignment will be based on the NWO criteria for evaluating the scientific content of this type of proposal: 1. quality, innovation and scientific impact of the research proposal 2. knowledge utilization In addition, academic writing skills of the student will be assessed. The final proposal is formally graded by one of the faculty, using a rubric whereby 8 categories with learning outcomes are addressed for assessment: 1;proposal structure, 2;language/grammar, 3;abstract (1-3 together 30%), 4;title, background, main question, specific objectives (20%), 5;proposed experimental approach and feasibility (20%), 6;innovation and scientific impact (10%), 7;knowledge utilization (10%), 8;providing feedback to peers (5%), 9;handling feedback (5%). Students will receive a grade on a scale from 1 (worst) to 10 (best). Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	October to December 2025
Coordination	Gerben Schaaf
Evaluation	The Project Proposal course and MSc program coordinators are open for suggestions from course participants on possible improvements. Course adjustments can be made on the basis of your direct feedback. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 3, 4, 5
End goals	2, 3, 4, 6, 8, 9, 11 ▪

Name	**Research Progress Presentation - Year 2**
Form	Oral presentation
Code	**MM-P2**
Aim	To practice organizing experimental data for a concise and informative presentation. To practice communicating experimental results and their interpretation. To present information on background and methods appropriate to time and audience. To provide an update on what students are doing in their research project.
Content	Halfway the full-year research project, students will present a 20 minutes talk on their research progress, accompanied by a slideshow. The students from the first MSc year are invited to these presentations. The presentation should include a brief introduction to the project, some information on specific experiments, details on methods, controls, and actual data, and a conclusion with a brief statement on the results obtained.
Literature	Instructions
Faculty	Gert Jansen, Gerben Schaaf.
Level	2nd year MSc student
EC	2
Course load	56 hours
Exam	Students should give a 20 minutes talk on the progress of their full-year research project, accompanied by PowerPoint slides. The evaluation will be based on clarity, organization and presentation aspects. The oral presentation will be assessed by at least two MSc faculty members. Students will receive a grade on a scale from 1 (worst) to 10 (best). Once they have given their presentation with sufficient results, and if they have attended at least 80% of the presentations of their peers, they are awarded 2 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	Individual presentations in March, 2026
Coordination	Gert Jansen, Gerben Schaaf
Evaluation	Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	2, 4
End goals	8

Name	**Lab Research Project Year 2**
Form	Practical training; 10-month research project in lab of choice.
Code	**MM-RES2**
Aim	To obtain practical experience in laboratory research, to collect scientific data, to practice communication skills, to master a variety of research techniques, and further develop scientific thinking and reasoning.
Content	The second year research project will take approximately 10 months, and is conducted in a host research laboratory of the student's choice, within any Erasmus MC department involved in basic (biomedical) science, or a comparable research lab elsewhere. The laboratory scientific group leader functions as the direct supervisor. While in the lab, students will obtain practical experience in laboratory research, collect scientific data, practice communication skills, master research techniques, and further develop scientific thinking and reasoning.
Literature	Literature relevant to the topic of choice.
Faculty	Individual scientific group leaders.
Level	2nd year MSc student
EC	39
Course load	1092 hours
Exam	Performance of the student during the full-year research project will be assessed in written form by the research supervisor. An extra mid-term moment of evaluation for both the supervisor and the student is recommended. This mid-term evaluation is not graded. Evaluations are made as written performance assessments, by the involved lab supervisors. For the total amount of lab work, upon completion, you will be awarded 39 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	September, 2025 to July, 2026
Coordination	Gert Jansen, Gerben Schaaf
Evaluation	The MSc program coordinators are open for suggestions from course participants on possible improvements. Course adjustments can be made on the basis of your direct feedback. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 3, 4, 5
End goals	1, 2, 3, 4, 5, 8, 9, 10, 11

Name	**Master Thesis**
Form	Written report and oral presentation.
Code	**MM-MSTH**
Aim	The MSc thesis should demonstrate the ability of the student to organize and present results and knowledge in a form required for publication of a scientific article. Submission of the manuscript for publication is not a prerequisite, but is aimed at. The MSc thesis should provide a record of the research work the student has done, a written presentation of knowledge and results, and a useful resource of information for others.
Content	The second, full-year, research project is concluded by submission and defence of the MSc thesis. The thesis will take the form of a full-length research article, suitable for publication in an international journal. In contrast to a regular article manuscript, the MSc thesis will include a more elaborate Introduction, describing the scientific background of the study: the Materials and Methods section will be expanded to include a complete and detailed description of all methods that have been applied; also, a List of Abbreviations will be added. The thesis is typically 20-50 total pages of 1.5 lines spacing, 10pt text, including figures, references, et cetera and will contain separate 'chapters': List of Abbreviations, Summary, Introduction, Materials and Methods, Results, Discussion / Conclusions, and in some cases appendices or supplemental material. The final version of the thesis will have to be accompanied by a 1-2 page summary of the specific improvements that were implemented in the final version, based on the comments the student has received by faculty on the draft version. This should be in the form of a rebuttal letter, as would accompany a manuscript resubmitted after review. The defence of the thesis will be preceded by an oral presentation of aim, results and conclusions of the thesis work. The evaluation, presentation, and thesis defence, will be assessed by the student's research supervisor, two independent MSc faculty members. The talk should take 20-30 minutes (not more), to be followed by a discussion of 15 minutes..
Literature	*The Elements of Style, 4th Ed* W. Strunk Jr. and E.B. White, Longman Publishers, 2000 *How to Publish in Biomedicine* Jane Fraser, Radcliffe Medical Press, 1997, (optional) *How to Write & Publish a Scientific Paper, 5th Ed* Robert A. Day, Oryx Press, 1998, (selected chapters)

	The Netherlands Code of Conduct for Scientific Practice General Board of the Association of Universities (Algemeen Bestuur van de Vereniging van Universiteiten) January 1, 2005 *On Being a Scientist, Responsible Conduct in Research* Committee on Science, Engineering, and Public Policy; National Academy Press, 1995
Faculty	Gert Jansen, Gerben Schaaf, individual scientific group leaders.
Level	2nd year MSc student
EC	6 (MSc thesis) + 2 (thesis defence)
Course load	224 hours
Exam	The MSc thesis manuscript will be evaluated by the research supervisor and an independent faculty member. The student's research supervisor and at least two independent MSc faculty members will assess the MSc thesis presentation and defence. Together, they will come up with a final grade both the MSc thesis and the thesis presentation. Students will receive grades on a scale from 1 (worst) to 10 (best), for the manuscript and the defence presentation. A weighted average will be calculated for the final score. Upon completion of this course, if students have successfully written and defended their MSc thesis, they are awarded 8 EC. Grade appeal is subject to the rules laid out in the Teaching and Examinations Regulations of Erasmus MC.
Period	Writing the MSc thesis will start during the full-year research project, while the large part is done in June/July 2026. In the middle of August 2026, the MSc thesis defence presentations are held.
Coordination	Gert Jansen, Gerben Schaaf
Evaluation	The MSc Thesis course and MSc program coordinators are open for suggestions from course participants on possible improvements. Course adjustments can be made on the basis of the student's direct feedback. Course contents and setup are re-evaluated periodically, at least once a year, by the course directors and MSc program board members.
Dublin descriptors	1, 2, 3, 4, 5
End goals	3, 5, 7, 8, 9, 10, 11

2.4 Course evaluations

After finishing the main theory courses of the MSc program, students will be asked to fill out an online evaluation form for each course. The online surveys allows students to give comments and/or suggestions for improvement.

When renewing the curriculum at the beginning of the academic year, the results of these evaluations are considered. Where deemed appropriate, changes in course contents are made by the course directors and/or the program director.

2.5 Workload, duration

The MSc Molecular Medicine program is a two-year research master program of 120 EC, representing a total study load of 3,360 hours. The workload for the students is evenly distributed over the course years. Textbook courses are predominantly scheduled for year 1. In year 2, the emphasis is on performing a full-year research project, leading up to the MSc thesis.
Each student has a right to six weeks of holidays per year, of which minimally two weeks in a row. The student is free to plan these weeks after consultation with the supervisor, and taking into account the scheduled program.

Erasmus MC students of Medicine

Selected Erasmus MC students of medicine have the opportunity to follow the MSc Molecular Medicine program by starting with the whole year 1 of the MSc Molecular Medicine program, followed by the medical master. After finishing medicine, students will come back to follow the second year of the MSc program (s*ee page 15 for an outline of the curriculum*).

Wageningen University – MSc Biotechnology students

WUR – MBT students have the possibility to specialize in 'Molecular Medicine' (WUR course modules *XEU-80336 Thesis Molecular Medicine part A* and *XEU-80324 Thesis Molecular Medicine part B* / 60 EC). These students follow the complete Year 2 of the MSc Molecular Medicine curriculum, and conduct a full-year research project and write and defend their MSc thesis in Rotterdam. Subsequently, WUR – MBT students will graduate in Wageningen (*also see page 60*).

2.6 Student exchanges – internships abroad

For a limited number of students, internships abroad are possible within the framework of our collaborative agreements with 3 universities:

Friedrich-Alexander-Universität, Nürnberg, Germany :	MSc Molecular Medicine
Georg-August-Universität, Göttingen, Germany:	MSc Biology
University of Barcelona, Spain:	MSc Biology / Neurosciences
Université Pierre et Marie Curie, Paris, France:	MSc Molecular and Cellular Biology

A typical student exchange will take the form of a clearly defined research project, and will be done while in year 2 of the program. When performing a research project in Nürnberg, Paris or Barcelona, students will receive supervision and guidance in accordance with the requirements in Rotterdam. The MSc thesis will always have to be defended in Rotterdam.

When visiting Rotterdam, exchange students from Nürnberg, Göttingen, Barcelona and Paris will be able to perform a research project, with optional additional courses.

Incidentally, students are allowed to conduct their 2nd year research project in a research lab abroad (other than the labs at FAU, GAU, UPMC or UB). This is only possible on the conditions that collaborations already exist between the involved research groups, and that our requirements regarding course work, supervision, and assessment are met.

The Erasmus MC offers internships on a wide variety of topics. Students may consider internships at institutes outside the Erasmus MC or even abroad. To ensure optimal guidance and training for the student as well as participation of the student in the 2nd year course Writing a Project Proposal, a few additional requirements apply to these "extra-Erasmus MC" internships, in particular to those in institutes abroad. Excellence of the candidate and the hosting institute are major factors for support from the Molecular Medicine MSc program. In addition, the internship requires a mentor from within the Erasmus MC and should preferably be part of a collaboration with an Erasmus MC research group.
Contact the program director or the year 2 coordinators (Dr. Gert Jansen and Dr. Gerben Schaaf) in time to discuss your plans and for more information.

An internship abroad can only be arranged and carried out in full agreement with the involved MSc faculty members: the lab supervisor, the course director(s), and the program director.

Staff

MSc Molecular Medicine faculty members are directly involved in basic biomedical research and training, within at least 20 different departments of Erasmus MC. This reflects the multi-disciplinary nature of our MSc program.

Faculty members are internationally recognized scientists and educators, with an excellent record of publications in peer-reviewed top international life science journals. Several faculty are members of the Royal Netherlands Academy of Arts and Sciences (*KNAW*), and many are elected members of the European Molecular Biology Organization, or are involved in other international organizations such as the World Health Organization.

Members of our staff have won many awards and prizes, such as the: Louis-Jeantet Prize for Medicine, Spinoza Prize, Laqueur Lecture Award, Mulder-Masurel Award, Descartes-Huygens Prize, Van Gogh Award, EC-Descartes Award, Josephine Nefkens Award, the ESCV Gardner Lecture Award, the ISFG Scientific Prize and the Ammodo award in Natural Sciences. MSc faculty consistently obtain research funding from NWO, KNAW, NKB-KWF, NIH, EC, ERC, and many other funding bodies. Since 2002, they have been awarded many NWO – VIDI and NWO – VICI grants. As a lifetime achievement award, four of our faculty members were appointed KNAW Academy Professor.

The MSc faculty is experienced in training students and postdoctoral fellows for university faculty, medical school faculty, clinical laboratory and industrial biomedical research positions, both nationally and internationally. To date, more than 600 students have successfully finished their PhD under the supervision of one or more of our faculty members.

3.1 Chair and course directors

Chair

Dr. Gert Jansen, program director	g.jansen@erasmusmc.nl
Dr. Gerben Schaaf	g.schaaf@erasmusmc.nl
Dr. Willy Baarends	w.baarends@erasmusmc.nl

Course directors

Dr. Willy Baarends	w.baarends@erasmusmc.nl
Dr. Derk ten Berge	d.tenberge@erasmusmc.nl
Dr. Thamar van Dijk	t.vandijk@erasmusmc.nl
Dr. Dik van Gent	d.vangent@erasmusmc.nl
Prof.dr. Joost Gribnau	j.gribnau@erasmusmc.nl
Dr. Gert Jansen	g.jansen@erasmusmc.nl
Dr. Andrea Lolli	a.lolli@erasmusmc.nl
Dr. Eskeatnaf Mulugeta	e.mulugeta@erasmusmc.nl
Dr. Roberto Narcisi	r.narcisi@erasmusmc.nl
Dr. Raymond Poot	r.poot@erasmusmc.nl
Prof.dr. Robbert Rottier	r.rottier@erasmusmc.nl
Dr. Martin van Royen	m.vanroyen@erasmusmc.nl
Dr. Gerben Schaaf	g.schaaf@erasmusmc.nl

Course coordinator

Marjoleine van Berckel Bik	mscmolmed@erasmusmc.nl

3.2 Faculty members

Name	Department	Research field / keywords
Reuven Agami	Netherlands Cancer Institute	Oncogenomics: Cancer, RNAi, microRNAs, Long noncoding RNAs, enhancer RNAs, Alternative polyadenylation, and protein translation
Maria Alves	Clinical Genetics	Hirschsprung: Zebrafish, sing-cell RNA seq, functional genetics, gastrointestinal genetics
Willy Baarends	Developmental Biology	Meiosis, in vitro gametogenesis, sex differentiation
Esther Baart	Gynaecology and Obstetrics	Human IVF, embryo development, aneuploidy, chromosome segregation
Stefan Barakat	Clinical Genetics	Non coding regulatory elements, enhancer, gene regulation, neurodevelopment, malformations of brain development, brain organoids, iPSC, Zebrafish
Sreya Basu	Developmental Biology	Control of cell shape and function
Debbie van den Berg	Developmental Biology	Transcription regulation, brain development, organoids, neurodevelopmental disorders
Derk ten Berge	Developmental Biology	Hematopoietic and embryonic stem cells, Wnt signaling
Ruben Bierings	Hematology	Hemostasis; Von Willebrand factor (VWF) biosynthesis and secretion; Endothelial cells; Cell biology; Weibel-Palade body exocytosis; bleeding disorders; vessel-on-a-chip
Vincenzo Bonifati	Clinical Genetics	Brain and movement disorders, neurodegeneration, Parkinson's disease
Gert-Jan Kremers	Pathology / OIC	Live cell imaging Confocal microscopy FCS Multi-photon 4Pi
Arnab Ray Chaudhuri	Molecular Genetics	DNA replication stress, DNA damage response, cancer, chemoresistance
Inês Chaves	Molecular Genetics	DNA repair, biological clock
Miao-Ping Chien	Molecular Genetics	Single cell technology for cancer biology
Odilia Corneth	Pulmonary Medicine	Interstitial lung disease: Sarcoidosis, Lung fibrosis, Long COVID / autoimmunity; immunology, flowcytometry, in vivo models, patient cohorts
Reno Debets	Medical Oncology	Tumor or virus-specific receptor gene transfer to retarget T cells; cancer and inflammation; novel immune technologies.
Ruud Delwel	Hematology	Leukemia disease genes
Thamar van Dijk	Developmental Biology	Erythroid differentiation, transcriptional regulation, signal transduction, cell models
Marjolein van Driel	Internal Medicine (Laboratory for Calcium and Bone metabolism)	Bone metastases, disease modeling, therapeutics, vitamin D, animal-free
Bram van der Eerden	Internal Medicine (Laboratory for Calcium and Bone metabolism)	regulatory mechanisms in bone, steroid hormone action, bone
Ype Elgersma	Clinical Genetics	Molecular Neurobiology, Neurodevelopment disorders, Targeted therapy (Antisense oligonucleotide (ASO) therapy), iPSC, Mice, Zebrafish
Jeroen Essers	Radiotherapy	DNA duplication and genome maintenance HeartCHIP
Eric Farrell	Oral and Maxillofacial Surgery	Mimicking the biological process of endochondral ossification to tissue engineer new bone for the treatment of bone defects
Pim French	Neurology	Neuro-oncology: glioma, omics
Niels Galjart	Developmental Biology	Control of cell shape and function

Name	Department	Research field / keywords
Dik van Gent	Molecular Genetics	DNA damage responses and tumor treatment: breast cancer, tumor slice cultures, organ-on-chip, DNA double strand break repair
Hélène Gleitz	Developmental Biology	Crosstalk of hematopoietic and stromal cells in the development of blood cancers
Cristina Gontan Pardo	Developmental Biology	Human X chromosome inactivation and X-linked neurodevelopmental disorders
Joost Gribnau	Developmental Biology	Sex chromosomes and Stem cell Biology, X inactivation, genomic imprinting
Jeffrey van Haren	Pathology / OIC	neuronal guidance mechanisms, live cell microscopy, cell dynamics, optogenetics
Rudi Hendriks	Pulmonary Medicine	immunodeficiencies, signal transduction, transcription factors, mouse models
Adriaan Houtsmuller	Pathology / OIC	in vivo dynamics of nuclear processes, androgen receptor
Gert Jansen	Developmental Biology	*C. elegans*, behavior, cilia, G protein signaling, signal transduction, intraflagellar transport, salt taste, Cell fate maintenance
Guido Jenster	Urology	androgen receptor, bioinformatics, biomarkers, microarrays, prostate cancer, proteomics, next generation sequencing
Roland Kanaar	Molecular Genetics / Radiation Oncology	genome maintenance, DNA repair, DNA recombination, genome transactions
Manfred Kayser	Pathology	forensic genetics and molecular biology, genetics and physical traits, human population and evolutionary genetics
Luc van der Laan	Laboratory of Experimental Transplantation and Intestinal Surgery	organ injury and repair
Hannes Lans	Molecular Genetics	DNA repair mechanisms and disease, DNA damage response to chemotherapy
Joyce Lebbink	Molecular Genetics	DNA mismatch repair
Franziska Linke	Experimental Urology	prostate cancer, PCa modelling (in vivo / ex vivo / in vitro)
Andrea Lolli	Oral and Maxillofacial Surgery	Bone tissue engineering: stem cells, microRNAs, regenerative medicine,
Eric Lubberts	Rheumatology	Rheumatology, dermatology, arthritis, inflammation, immune-mediated inflammatory diseases
Wim Mandemakers	Clinical Genetics	brain and movement disorders, neurodegeneration, Parkinson's disease
Tokameh Mahmoudi	Pathology	Gene Regulatory Mechanisms
Jurgen Marteijn	Molecular Genetics	DNA damage response, DNA-repair
Eskeatnaf Mulugeta	Internal Medicine (Endocrine tumors Laboratory)	Endocrine tumor biology, Gene regulation, Genomics, Epigenomics, Gene regulatory networks, Computational biology
Roberto Narcisi	Orthopaedics & Sports Medicine	Connective Tissue Repair, cellular processes in cartilage and bone repair
Julie Nonnekens	Radiology and Nuclear Medicine / Molecular Genetics	prostate cancer / in vitro models, in vivo and ex vivo experiments
Gerjo van Osch	Orthopaedics & Sports Medicine	cartilage, cell therapy, growth factors, osteoarthritis, regenerative medicine, tissue engineering
Catarina Osorio	Neuroscience (Schonewille group)	Neuron dysfunction in brain development Cerebellum, Purkinje cells, hereditary ataxia
Emma de Pater	Hematology	Blood cancer (MDS / AML) RNA sequencing, CRISPR/Cas9
Jeroen van de Peppel	Internal Medicine (Laboratory for Calcium and Bone metabolism)	Regeneration of bone, Bone metastases, Rare bone diseases

Name	Department	Research field / keywords
Ingrid van der Pluijm	Molecular Genetics and Vascular Surgery	Cardiovascular Aging
Pim Pijnappel	Pediatrics	Pompe disease, Lysosomal storage disease, reprogramming, iPS cell, muscle stem cell, gene correction, TAL effector nuclease, pre-mRNA splicing, pathology
Joris Pothof	Molecular Genetics	DNA damage response, aging, cancer, cancer therapy resistance, genomics, next generation sequencing, microRNA
Robbert Rottier	Pediatric Surgery	Molecular basis of lung development, molecular biology, developmental biology, pediatric lung diseases, lung models, organoids, lung on a chip
Martin van Royen	Pathology / OIC	Non-coding RNA and extracellular vesicles, prostate cancer
Gerben Schaaf	Pediatrics	Muscle Stem Cells, Stem cell-based therapies, Muscle-degenerative disease
Christopher Schliehe	Immunology	MHC class I antigen presentation, cancer immunotherapy: cell culture, flow cytometry, western blot, cloning, lentiviral transduction, CRISPR screens, generating KO cell lines, small molecule-based protein degradation, in vitro and in vivo cancer models
Rebekka Schneider	Developmental Biology	Hematopoietic stem cell niche
Martijn Schonewille	Neuroscience	Cerebellum, Purkinje cells, hereditary ataxia
Titia Sixma	Netherlands Cancer Institute	DNA function repair, structural biology, ubiquitin conjugation, DNA mismatch repair
Ralph Stadhouders	Pulmonary Medicine	Lymphocyte biology Lung inflammation, anti-tumor immunity Chromatin profiling, gene regulation
Bas van Steensel	Netherlands Cancer Institute	Genomics of gene regulation and chromatin: chromatin profiling, gene expression, bioinformatics
Nitika Taneja	Molecular Genetics	DNA Chromatin Replication, Genetic & Epigenetic Replication Instability
Georges Verjans	Viroscience	Herpes simplex virus, varicella zoster virus, virus-host interactions
Wim Vermeulen	Molecular Genetics	DNA damage response, transcription
Peter Verrijzer	Developmental Biology	Developmental gene regulation, chromatin remodeling, transcription, *Drosophila*, cancer
Edward Visser	Internal Medicine, Thyroid lab	Cellular thyroid hormone signaling; iPSC-based models; molecular and translational studies in disordered thyroid hormone signaling; therapy development
Jenny Visser	Internal Medicine (Metabolism and Reproduction)	Obesity (incl. monogenic obesity), GPCR signaling in obesity, Sex differences in adipocyte function, Brown adipose tissue, iPSC, Polycystic ovary syndrome (PCOS), Anti-Müllerian hormone (AMH)
Femke de Vrij	Psychiatry (Neuroscience dept.)	Human stem cell modeling of neuropsychiatric disorders
Kerstin Wendt	Developmental Biology	Cohesins and developmental defects, chromatin structure and regulators, CTCF
Geeske van Woerden	Neuroscience	The role of CAMK2 in neurodevelopment and neurodevelopmental disorders

Assessments

4.1 Exams

The combined Master of Science programs at Erasmus MC have developed a shared set of Teaching and Examination Regulations (*Onderwijs- en Examenreglement, OER*). Students can obtain a copy of the full text of the Teaching and Examination Regulations Research Master Programs (in English) online, from https://www.eur.nl/en/erasmusmc/programmes/rules-and-regulations/ter-research-masters.
The main rules for course assessments are:

Examination
All course modules within the MSc Molecular Medicine program are assessed as stated in the course descriptions of this student manual (*pages 20-46*).
Attendance is mandatory for all courses or course sessions, but students are allowed to be absent a maximum of 20%.
Study Credits (European Credit, EC) will only be awarded if the above requirements are met and if a test is passed with sufficient results.

Re-exams
Students are entitled to take one re-exam for each test, per year.

Exemptions
All course modules in the program are mandatory. Requests for exemptions will be evaluated by the examination board (see below), which to this purpose needs to receive a written request from the student.

4.2 Examination board and Educational Committee Research Masters

The combined research master's programs at Erasmus MC have an examination board (*examencommissie*) as well as an Educational Committee Research Masters (*opleidingscommissie*).

MSc examination board
The MSc examination board carries formal responsibility for the outcome of all exams of the program. There is one board for all bachelor and master programs (including medicine). There is a separate chamber of the examination board for the combined five Erasmus MC research master programs[1]. The MSc examination board chair reports to the dean of Erasmus MC. The board will delegate specific responsibilities to the MSc Molecular Medicine admissions committee.

[1]MSc Molecular Medicine, MSc Neuroscience, MSc Health Sciences, MSc Infection and Immunity, and MSc Genomics in Society.

Members of the chamber research masters of the Erasmus MC examination board
Dr. F. Petrij, chairman
Dr. A.J.M. Verhoeven, vice-chairman
Dr. M.M. Jaegle
Dr.ir. Johan Pel
Secretariat: examinationboard@erasmusmc.nl

Educational Committee Research Masters
The Educational Committee Research masters (ECRM) acts as an advisory board for matters concerning the existing five research master programs[1] within Erasmus MC, according to the Dutch Law on Higher Education (WHW, article 9.18). The committee is entitled to advise on and yearly evaluate the 'education and exam regulations' (onderwijs- en examenregeling, OER), and to advise the program director and the dean on all matters concerning the educational program, either on request or on its own authority.
The ECRM consists of five MSc faculty members (including the committee chair) and five MSc students: one for each Erasmus MC research master program. Chairpersons and program directors are excluded from this committee.

ECRM members
Dr. E. Loehrer (chair, faculty member MSc Genomics in Society)
Dr. L. Chaker (faculty member MSc Health Sciences)
J.P. Hays (faculty member MSc Infection and Immunity)
Dr. K.S. Wendt (faculty member MSc Molecular Medicine)
M.J. Negrello (faculty member MSc Neuroscience)
L. Zableckis (student member MSc Genomics in Society)
S.A. Khan (student member MSc Health Sciences)
L. Admiraal (student member MSc Infection and Immunity)
F.P. Lim (student member MSc Molecular Medicine)
R.V. Yavryan (student member MSc Neuroscience)

(secretariat: educationcommitteeRM@erasmusmc.nl)

Admissions

5.1 Selection criteria

The admissions committee is responsible for the admission of candidate students. Members of the admissions committee are the chairpersons, the program director, and occasionally, one of the course directors.

Candidate students are asked to submit their application on-line via the MSc Molecular Medicine website https://www.eur.nl/en/research-master/molecular-medicine, and face the following selection criteria:

- BSc in any of the biomedical sciences (e.g. biology, biochemistry, medicine), *or* BASc from a Dutch vocational training program in biomedical laboratory techniques (*HBO-BML*)
- personal motivation, assessed by written statement and/or interview
- letter of reference
- TOEFL 575 / 232 / 90 or IELTS 6.5, or comparable English proficiency
- overall performance in previous educational programs
- in some cases: a written entrance examination

The academic records of prospective students are always examined. For foreign candidates we perform a detailed analysis of grades, bearing in mind the various grading systems of different countries. Generally speaking, we wish to see a minimum grade point average of 80%. You will be further evaluated on the basis of your personal motivation, and the ability to express this motivation in written form and/or during an (internet) interview.

5.2 Biomedical BSc students

Prospective international or Dutch students with a background in life sciences are advised to contact us before submitting an application on-line, preferably via email: mscmolmed@erasmusmc.nl.

Application deadline for the academic year 2026-2027:
March 1, 2026 (non-EU/EEA students)
May 1, 2026 (EU/EEA students)

5.3 Erasmus MC – BSc students of medicine

Selected Erasmus MC students of medicine have the opportunity to follow the MSc Molecular Medicine program by starting with the whole year 1 of the MSc Molecular Medicine program, followed by the medical master. After finishing medicine, students will come back to follow the second year of the MSc program (*see page 15 for an outline of the curriculum*).

Application deadline: May 1st, 2026 (for the academic year 2026-2027)

5.4 HBO – BML students

BASc students in Biomedical Lab Techniques from the Hogeschool Rotterdam, or any relevant higher vocational training program (HBO) within the Netherlands, may apply. Please contact us (mscmolmed@erasmusmc.nl) before submitting an application.

Application deadline: May 1st, 2026 (for the academic year 2026-2027)

5.5 WUR – MBT students

MSc students in Biotechnology from Wageningen University can choose to specialize in 'Molecular Medicine' (WUR course modules *XEU-80336 Thesis Molecular Medicine part A* and *XEU-80324 Thesis Molecular Medicine part B* / 60 EC). These students follow the complete year 2 of the MSc Molecular Medicine curriculum, conducting a full-year research project and writing and defending the MSc thesis in Rotterdam. Subsequently, WUR - MBT students will graduate in Wageningen. While at Erasmus MC, they can take part in additional courses and seminars.

Interested students can contact the MSc Biotechnology coordinator, Dr. Sonja Isken (mbt.msc@wur.nl).

5.6 MSc students from elsewhere

In special cases, students from equivalent MSc research master's programs (within the Netherlands or abroad) may wish to enter at the year 2 level. Such an admission will require evaluation by the admissions committee, based upon academic scores, an interview, and the submission of a research proposal.

Money

6.1 Tuition fees, cost of living

Tuition fees per year, fixed amounts for 2025-2026

EU/EEA/Swiss/Surinamese students	€	**2.601**
Students from non-EU/EEA countries	€	**23.000**

Tuition fees per year, fixed amounts for 2026-2027

EU/EEA/Swiss/Surinamese students € 2.695

Students from non-EU/EEA countries € 23.600

Prospective **students from abroad** should be aware that for accommodation and the daily cost of living approximately € 1.800 per month is needed, in addition to the tuition fees mentioned above.

For a realistic cost estimate and advice on your financial situation, please visit https://www.eur.nl/en/education/practical-matters

6.2 Possible scholarships and grants

A few scholarship links

- https://www.eur.nl/en/education/practical-matters/scholarships-grants
- https://www.studyinnl.org/
- https://education.ec.europa.eu/study-in-europe/planning-your-studies/scholarships-and-funding
- https://duo.nl/particulier/student-finance/

6.3 Working in the Netherlands

During your stay in Rotterdam as a MSc Molecular Medicine student, we strongly advise **against** taking on an extra job, alongside your studies. You will need your valuable time to study, prepare for classes, write reports, and perform your research projects in the lab. Nevertheless, we list the current rules here.

- Students from EU/EEA countries, including Switzerland

Students from most countries of the European Union, and students from the European Economic Area including Switzerland, are allowed to work in the Netherlands without restrictions. Your employer does not need to apply for a work permit and you may work as many hours as you wish. However, you must pay income tax, so you will need a tax registration number (Dutch: *Burger Service Nummer*, *BSN*).

- Students from outside the EU/EEA

Students from outside the EU/EEA with a valid residence permit are allowed to work for a salary 10 hours a week on average per year. Your employer will need to apply for a work permit.

Dutch Tax Office website	https://www.belastingdienst.nl/wps/wcm/connect/nl/home/home
Dutch Immigration Office website	https://ind.nl/en
Expat recruitment agency	https://undutchables.nl/

Services

7.1 Facilities

Registration as a student

Existing and new students are required to (re-)register for the MSc program yearly, at https://www.studielink.nl/

Registration as a guest employee / accident insurance

Students will additionally be registered as a 'guest employee', before the start of the laboratory practices in the program. This registration will allow you easy access to the faculty building. As a guest employee, you are insured against accidents in the workplace.

Introductory activities for new students

- MScMM introductions in September

Apart from the introductory week of the MSc program (Introduction weeks, *see page 22*), newly admitted students are invited to attend the Thesis defences of our graduating students, in the 3rd week of August. Our yearly MSc Graduation Ceremony is held in the first week of September. Students, faculty, and alumni, are invited to this event.

- EUR introduction activities for new students – Every year in August, Erasmus University hosts the Eurekaweek, a week-long event for all new students. 'Eureka' stands for *Erasmus University Rotterdam Eerstejaars*

For more information please see https://www.eur.nl/en/education/study-rotterdam/eurekaweek

Student Service Center, International Office

The Erasmus University Student Service Center and the university International Office have clear and up-to-date online information for students: https://www.eur.nl/en/education/practical-matters/contact

University services at the Woudestein campus and Hoboken campus

Erasmus University Rotterdam has two main locations: the Woudestein campus and Erasmus MC (or 'Hoboken'). Most student facilities are situated at the Woudestein campus. University facilities and services include:

- the **sports center**. Two sports halls, five squash courts, a fitness gym, and six open-air tennis courts are at your disposal. You may choose from a wide variety of sports, including basketball, boxing, aerobics, athletics, and football (soccer), and you can also take courses in tennis or squash. Buy your Sport pass online. More info: https://erasmussport.nl/en/ and at Erasmus MC https://erasmusmc.highfive.fit/en

- **professional help**. During your time as a student, you may need to see a physiotherapist, a student psychologist, study counsellors, or religious counsellors. See https://www.eur.nl/en/education/practical-matters/advice-counselling for details.
- **student organizations**, such as student unions, student associations (including associations specifically for international students), student cultural organizations, student sports clubs, political organizations, and many more. Visit https://www.eur.nl/en/education/practical-matters for details.

MSc Molecular Medicine Program Coordinator

Any questions regarding your study program can be addressed directly to the MSc Molecular Medicine Coordinator, Marjoleine van Berckel Bik (Educational Advisor). You can reach her by phone: +31-10-7044844, by email: mscmolmed@erasmusmc.nl, or you can stop by at the office in room Ee-971 (on the 9th floor of the Erasmus MC faculty building).
In the absence of Marjoleine, and in case of emergency only, you may contact Elise Buitenhuis-Linssen, the Coordinator of the MSc Program in Neuroscience: masterneuroscience@erasmusmc.nl or the Director of the MSc Molecular Medicine Program: Dr. Gert Jansen, g.jansen@erasmusmc.nl.

Academic advisors

Students of the Research Masters of Erasmus MC have the option to contact the academic advisors (studieadviseurs in Dutch) of the Erasmus MC for study advice. The academic advisors are independent of the Research master programs and all consultations are confidential. The academic advisor acts as an advisor to the Examination Board and the programme director for students who need an exception to the rules.
For more information and to schedule an appointment, go to https://stip.erasmusmc.nl/csp
The academic advisors can also be reached by e-mail: academicadvisor.rema@erasmusmc.nl

MScMM program links

Students will receive regular updates by email and via the online student information channel: https://canvas.eur.nl. Use your ERNA account to login.
The program website https://www.eur.nl/en/research-master/molecular-medicine gives students general course information.

Erasmus MC links

Employee login to Erasmus MC intranet from home, with library and PubMed access: https://www.eur.nl/en/erasmusmc/campus-0/medical-library

Alumni

https://www.erasmusmc.nl/en/alumni.

Classrooms

Weekly classes are held in the university Education Center colloquium rooms, or one of the meeting rooms of the Biomedical Sciences departments at Erasmus MC (Ee-1528, Ee-1024 and Ee-822).

Course materials

Textbooks courses: students are offered the loan of some of these books. Course schedules, course documents, selected articles and presentations slides are handed out online https://canvas.eur.nl.

Test results

Test results are registered in OSIRIS, the Erasmus University student registration system. Students can check their results on OSIRIS Online: http://osirisstudent.eur.nl

Libraries

- Erasmus MC Medical Library

Students have access to the Erasmus MC Medical Library and the various institutional libraries. The Medical Library is located in the Education Center of Erasmus MC, phone +31-10-7043783. The Medical Library can be visited online at: https://www.eur.nl/en/erasmusmc/campus-0/medical-library

- EUR University Library

The EUR University Library collection includes approximately one million volumes, over 10,000 periodicals and access to more than 300 digital databases in all scientific areas that are taught and studied at EUR. To borrow, a student card or library card is necessary. Publications not available in the University Library can be requested from another library for a small charge. The University Library is situated at the *Woudestein* university campus, in the B building, Burgemeester Oudlaan 50, Rotterdam.

- Rotterdam Central Library – *Bibliotheek Rotterdam*

The Rotterdam Central Library in the city center, near the subway station *Blaak*, has six floors and over one million books. The central library is a social and cultural information center where you can read (international) newspapers and magazines, see exhibitions and listen to music. You can borrow books, projection-slide series, films, and DVDs. Studying at and obtaining information from the library is free of charge, but you will need a subscription card if you want to borrow books or other materials. https://www.bibliotheek.rotterdam.nl/english

Computers, communications, and the web

In the Education Center of Erasmus on the 2nd floor computers are available to the students. To make use of computer facilities within Erasmus MC and to login to the university websites from home or any other location, the students are given an Erasmus Remote Network Access (ERNA) account.

For copying, you can go to the Medical Library on the 2nd floor in the Education Center. There are commercial printing facilities at the Canon shop, 3rd floor Faculty building.

Software

Cheap software for registered students and/or employees can be obtained from: https://www.surfspot.nl/.

Language courses

At the university's Language & Training Center (LTC), you can take beginner, intermediate and advanced courses in English, Spanish, German, French, Italian, Japanese, Chinese, Russian, and Dutch.

An intensive Dutch course is organized twice a year in August and January. This course takes place during the day and focuses on grammar, vocabulary and conversation, and includes a few excursions. See https://www.eur.nl/en/education/language-training-centre

Student councils

According to the Dutch 'Modernizing University Administration' act (*wet Modernisering Universitaire Bestuursorganisatie - MUB*), students have a say in the administration and policies of the university. Besides the EUR university council, with 2 employee members and 2 student members coming from the medical faculty, Erasmus MC has a student council, consisting of 8 student members.

The Educational Committee Research Masters, ECRM (*see page 56*), is specifically involved in the policies and educational programs of the five research master's programs at Erasmus MC.

EUR University council:	universiteitsraad@abd.eur.nl
Erasmus MC student council:	studentenraad@erasmusmc.nl
Educational Committee Research Masters:	educationcommitteeRM@erasmusmc.nl

7.2 Tutors, guidance

Because of relatively small student numbers, contacts between students and staff are informal and plentiful. As a student, you can come and see the program director, the course directors, and/or the coordinator whenever necessary.

In year 1 of the program, you can choose a tutor for personal guidance and counseling. The tutor may play an important role when you make a choice for your first research project.
As soon as you start the year 1 laboratory research project, you will be absorbed in the pertaining research group, with a group leader acting as your direct supervisor.

Before the start of year 2, you are required to draft a research proposal, in preparation for your engagement in the full-year research project. In January, the year 2 course director will have a personal talk with each individual student in year 2 on her or his study progress. If needed, the research supervisor is consulted as well.

The MSc chairpersons, program director, and course directors continually monitor the progress and performance of the students within the program. They can seek advice from tutors and supervisors.

7.3 Alumni

The first group of MSc Molecular Medicine students graduated in 2003. We try to stay in touch with our alumni on a basic level, by yearly monitoring their whereabouts and experiences. Via a LinkedIn (https://www.linkedin.com) network group we maintain contacts between MSc students, MSc Faculty members.
The website of the Erasmus MC Alumni Network went live in July 2021.
https://www.erasmusmc.nl/en/alumni.

Preparing your stay

when coming from abroad

8.1 Student Service Center, International Office

The Erasmus University Student Service Center (ESSC) and the university International Office have clear and up-to-date online information for prospective international students, on visa, student registration, finances, and various other services:
https://www.eur.nl/en/education/practical-matters students can call them during office hours (Central European Time) at +31-10-4088880 (choose option 1).

8.2 Practical matters

Introductory activities for new students

- MScMM introductions in September

Apart from the mandatory introductory course of the MSc program (*see page 22*), newly admitted students are invited to attend the Thesis defences of our graduating students, in the 4th week of August. Our yearly MSc Graduation Ceremony is held in the first week of September. Students, faculty, and alumni, are invited to this event.

- EUR introduction activities for new students – Every year in August, Erasmus University hosts the Eurekaweek, a week-long event for all new students. ‘Eureka’ stands for *Erasmus University Rotterdam Eerstejaars*

For more information please see https://www.eur.nl/en/educaion/study-rotterdam/eurekaweek

Accommodation

The Erasmus University International Office will make sure that you are offered a suitable student room or apartment in Rotterdam.

Visa and residence permit

If applicable, your visa and residence permit must be arranged before your arrival. The Erasmus University International Office will guide you through the process.

Passport

Your passport should be valid for at least six months after your intended arrival date in the Netherlands. If this is not the case, renew your passport prior to your departure, otherwise you will run the risk of not being admitted to the country.

Registration at the City Hall, including tax registration number - *BSN*

To officially register as a resident of Rotterdam with the Municipal Primary Administration (Dutch: *Gemeentelijke Basis Administratie, GBA*), you will need the following documents:

- Valid passport or valid identity card
- Original birth certificate (authenticated or legalized)
- Rent agreement or, for those who do not live in accommodation provided by Stadswonen, a declaration by the main occupant (Dutch: *verklaring van inwoning*), or a housing permit

Make sure you have these documents on arrival, or in case of the rent agreement, shortly after. You will register at the City Hall when you have actually arrived.

Within approximately four weeks after you have been successfully registered, you will receive a unique tax registration number (Dutch: *Burger Service Number*, *BSN*), in a confirmation letter from the Municipal Administration (*GBA*). Certain agencies may ask you for your *BSN* number, for example an employer, your benefit provider, your bank or your insurance company.

Health insurance, third party liability insurance

Before you come to the Netherlands, check that you are properly insured against the costs of medical treatment and third party liabilities. Perhaps there is an insurance company in your home country that will cover medical costs and liabilities in the Netherlands. If so, bring international declaration forms or a European Insurance Card with you. If your current insurance is not sufficient, you will need to take out an insurance policy for the duration of your stay in the Netherlands.

We recommend Aon Students Insurance: https://www.students-insurance.eu/students/en/
While students and working on their research projects in any of the labs of Erasmus MC, they are insured against accidents in the workplace.

The doctor

For medical assistance, it is common in the Netherlands to go see a general practitioner (Dutch: *huisarts*) first, before visiting any specialist in the hospital. Find a GP in your neighbourhood. Google 'huisarts Rotterdam' for a map and list.

After office hours and during weekends, the Rotterdam GPs have a collective emergency post at the Sint Franciscus Gasthuis, Kleiweg 500, Rotterdam, phone 010 - 4669573. See https://www.huisartsenpostenrijnmond.nl/english

The Erasmus MC Emergency Ward (Dutch: *Spoedeisende Hulp*, *SEH*) is located at the Dr. Molewaterplein 40, phone +31 10 7040145. See https://www.erasmusmc.nl/en/patient-care/emergency

Pharmacy and chemist

Most medications are only available on prescription. You will be given the prescription by the general practitioner and can collect your medication at a pharmacy (Dutch: *apotheek*). the chemist (Dutch: *drogist*) and some supermarkets sell medications that do not require a prescription, such as aspirin and cough medicine. For night and weekend emergencies, one of the Rotterdam pharmacies will always be open. Call any pharmacy to find out which one is on duty, or check the notice in the window.

Opening a bank account

As you will be living in the Netherlands for an extended period of time, we recommend opening a Dutch bank account. You will for instance need a Dutch bank account if you want to pay your tuition fee in instalments. All banks can charge for products and services, but they must inform you of the charges levied. There are several major banks in the Netherlands.
The ABN AMRO Bank, ING Bank and Rabobank offer online banking facilities that are completely in English. To open a bank account, visit https://www.eur.nl/en/education/practical-matters/financial-matters/dutch-bank-account

Postal services

You can buy stamps for letters and postcards, or send larger packages, from post offices at various locations in Rotterdam. Mail can be posted at these post offices (bearing the sign *TNT Post*) or at any of the orange mailboxes you find in the street. Some TNT Post offices have banking services from ING. It is possible to pay bills through the TNT Post office, even if you don't have an account with them, but you may have to pay a small charge. See website http://www.tntpost.nl for locations (only in Dutch).

Telephone

When calling **within** the Netherlands, all land lines will have an area code starting with a zero (010 for Rotterdam), followed by the actual phone number. When calling **to** the Netherlands from abroad, after the country code +31, the initial zero of the area code is left out (thus: +31-10 for Rotterdam). Similarly, mobile phone numbers start with 06 (or +31-6). Numbers beginning with 0800 are toll free but cannot be called from abroad; 0900 numbers are charged (per call or per minute).
Erasmus MC has a telephone exchange. Internal phone calls are toll free: dial the last 5 digits of the number (example: 44844 instead of +31-10-7044844).

Mobile phones

You may want to find a Dutch mobile phone service with a contract (in Dutch: *abonnement*), or perhaps you would prefer a prepaid card. Compare the latest rates at https://www.bellen.com (in Dutch only). Be aware that for a contract, you will need a Dutch bank account, a document that gives proof of your address and income (such as a bank statement), and a passport.

Power - electricity and gas

The Netherlands' energy market is privatized. Utility companies offer integrated services, providing gas / electricity. You may choose your own energy provider (but NOT if you are a tenant of Stadswonen property). Electricity is 230 Volts, alternating at 50 Hertz. If your device does not accept this, you will need a voltage converter.

Water

Clean drinking water is available straight from the tap all over the country. The water companies, the national government, and the 'Water Control Board' (Dutch: *waterschap* or *hoogheemraadschap*) together take care of the supply of clean water, the discharge of wastewater, and the groundwater level. Tax is charged for these water works. You will most likely receive a separate, yearly water bill.

Climate

The Netherlands have a typical 'marine' climate. In summer, fine, hot weather may last for weeks, but the weather may just as well be cool and unsettled. In winter, spells of cold weather lasting from a week to two months or more may cause rivers and canals to freeze, but in mild winters this may not occur at all. Rainfall is well distributed over the year. The average daily temperature in January is around 5°C, and in June around 20°C. Check for approaching showers real-time at https://www.buienradar.nl/

Public transport

The Rotterdam Transportation Authority (Dutch: *Rotterdamse Electrische Tramweg maatschappij*, *RET*) provides mass transit services in the greater Rotterdam area by tram, bus, and subway (metro). You need a public transport chipcard (Dutch: *Openbaar Vervoer chipkaart*, *OV-chipkaart*) to travel. Personalized, anonymous, and/or disposable cards can be purchased online at http://www.ret.nl/?sc_lang=en, from *RET* ticket offices, and from *RET* vending machines at metro stations. Dutch railway services are widespread across the country, in most cases maintained by the National Railways (Dutch: *Nederlandse Spoorwegen*, *NS*). Paper railway tickets are no longer available in The Netherlands, you have to use the *OV-chipkaart or single-use chipcard*, see for more information https://www.ns.nl/en. If you have a personalized or anonymous *OV-chipkaart*, you will have to load credit onto the card before travelling. This can be done at the vending machines, or online, via https://www.ov-chipkaart.nl/en OR: *Checking in and out with OVpay : You can also check in and out with your contactless debit card, credit card or mobile. This is another way, in addition to your OV-chipkaart. Check the website of OV-chipkaart for more details.* When using the *OV-chipkaart or your debit/credit card*, make sure to always check in and check out at the station (or in the bus or tram). If you plan on travelling by train and/or metro a lot, it might be a good idea to buy an off-peak discount pass. For both local and national public transport, 40% discount cards are available. For more information, visit the *NS* or *RET* website, or go to the *NS* or *RET* counter, for example at Rotterdam Central Station. National public transport itinerary planner: https://9292.nl/en

The bicycle

To get around quickly, easily and cheaply, buy a bicycle (Dutch: *fiets*). A used bike in reasonable shape will cost you between € 75 and € 150. Find them at second-hand bike shops or advertised in the small ads on the notice boards of supermarkets. Always use a good quality bicycle lock.
Or rent a bike: https://swapfiets.nl/en/

Cheap and free stuff

https://www.marktplaats.nl/ - the Dutch equivalent of Ebay
http://www.gratisoptehalen.nl/aangeboden - free electronics, home appliances, and furniture.

NL news

If you are interested in Dutch society, mentality, and current issues, the preferred public news source is Radio Netherlands Worldwide: https://www.rnw.org/

Supermarkets and markets

The larger supermarkets in Rotterdam are open 7 days a week. Albert Heijn, Jumbo and PLUS supermarkets are considered as one of the best, Aldi, Dirk and Lidl supermarkets are the cheapest. Besides groceries, most supermarkets sell stamps and mobile phone prepaid credit. Weekly open air markets for affordable fresh food, flowers, and clothing are held on Saturdays at the *Binnenrotte* square in the city center, and in other locations, for instance the *Visserijplein* in the west of Rotterdam.

Out and about in Rotterdam

The 'Rotterdam Pass' will give you lots of discounts on cultural events, travelling, restaurants, et cetera, within Rotterdam. As a student, you can buy it at the Rotterdam Central Library. You will need a passport photo, your student ID card and a valid ID. More info:
https://www.rotterdampas.nl/ (only in Dutch).

8.3 Checklist

Before you go

- Application and admission MSc Molecular Medicine
- Sufficient financial resources to cover tuition fees and cost of living
- *Studielink* – student registration
- Fast track *MVV* entry visa or residence permit application (if applicable, via Erasmus University International Office)
- Registration for housing via the Erasmus University International Office
- Health insurance (and third party liability insurance)
- Travel arrangements
- ID card valid for use in the Netherlands, or passport
- Original birth certificate (authenticated or legalized).

Upon arrival

- Bring some cash money to cover first travel expenses within the Netherlands
- Sign your rent agreement, pay the rent for the first month and possibly: a deposit
- If applicable, report to the ESSC – Erasmus Student Service Center within three days of arrival, in the main hall of the E-building, *Woudestein* campus, Burgemeester Oudlaan 50, Rotterdam, to complete the residence permit application. Bring all your papers.
- If applicable, take the tuberculosis check at the Municipal Public Health Authority *GGD*, Zalmstraat 7, Rotterdam.
- Register at the City Hall, Coolsingel 40, as a resident of Rotterdam. Bring all your papers.
- If applicable, pick up your residence permit.
- With help of the MSc coordinators, complete your registration as a guest employee of Erasmus MC.

8.4 National Holidays

December 5, 2025 (Friday)	Sinterklaas (not an official holiday) *Sinterklaas*, the original version of Santa Claus, is celebrated in Flanders and the Netherlands. Loosely based on Saint Nicholas, this fictional character arrives yearly from Spain to hand out presents and sweets to children.
December 25, 2025 (Thursday)	Christmas Day
December 26, 2025 (Friday)	Second Christmas Day – Boxing Day
December 31, 2025 (Wednesday)	Old Year's Day
January 1, 2026 (Thursday)	New Year's Day
April 3, 2026 (Friday)	Good Friday (not an official holiday) Religious holiday for christians, commemorating the crucifixion of Jesus Christ.
April 5, 2026 (Sunday)	Easter Religious holiday for christians, commemorating the resurrection of Jesus Christ.
April 6, 2026 (Monday)	Easter Monday
April 27, 2026 (Monday)	King's Day Celebration of the birthday of King Willem - Alexander, as a day of national unity. People wear orange, wave flags and drink beer. Others will hold or visit rummage sales in the streets.
May 4, 2026 (Monday)	Memorial Day (not an official holiday) The *Dodenherdenking* is held for those who fought and died during World War II, or in later combat or peacekeeping operations. Throughout the country, two minutes of silence are observed at 20:00 hrs.
May 5, 2026 (Tuesday)	Liberation Day (not an official holiday) Celebrated to mark the end of World War II.
May 14, 2026 (Thursday)	Ascension Day Religious holiday for christians, commemorating the ascension of Jesus Christ into heaven.
May 24, 2026 (Sunday)	Pentecost Religious holiday for christians, 50 days after Easter, celebrating the descent of the Holy Spirit upon the disciples of Christ.
May 25, 2026 (Monday)	Pentecost Monday

8.5 Useful websites, addresses and phone numbers

Emergency telephone number: **112**

Local police, non-emergency: **0900 - 8844**

***Studielink* Student Help Desk**
@: helpdesk@studielink.nl
www.studielink.nl

City Hall - *Stadhuis*
Coolsingel 40 (*Dienst Burgerzaken*)
3011 AD Rotterdam
Open: 09:00 – 17:00 hrs (on Fri. till 20:00 hrs.)
Tel: **14 010** or +31 (0)10 267 16 25
www.rotterdam.nl

Municipal Public Health Authority *GGD*
Zalmstraat 7
3016 DS Rotterdam
Tel: +31 (0)10 433 9966
@: info@ggd.rotterdam.nl
https://www.ggdrotterdamrijnmond.nl/

Erasmus MC - hospital
Dr. Molewaterplein 40
3015 GD Rotterdam
Tel: +31 (0)10 704 0704
web: www.erasmusmc.nl

Stayokay Rotterdam Hostel
Overblaak 85-87
3011 MH Rotterdam
Tel: +31 (0)10 436 5763
@: rotterdam@stayokay.com
www.stayokay.com/en/hostel/rotterdam

Hostel ROOM
Van Vollenhovenstraat 62
3016 BK Rotterdam
Tel: +31 (0)10 282 7277
@: info@roomrotterdam.nl
www.roomrotterdam.nl

Stadswonen Rotterdam
Eendrachtsplein 19
3015 LA Rotterdam
Tel: +31 (0)10 245 67 00
https://www.stadswonenrotterdam.nl/nl

Tax Office - *Belastingdienst* Rotterdam
Laan op Zuid 45
3072 DB Rotterdam
Tel: 0800 0543
https://www.belastingdienst.nl/wps/wcm/connect/nl/home/home

Rotterdam Central Library
Hoogstraat 110
3011 PV Rotterdam
Tel: +31 (0)10 281 6100
https://www.bibliotheek.rotterdam.nl/

Rotterdam Tourist Information
Central Station
Stationsplein 21, 3013 AJ Rotterdam
Tel: +31 (0)10 790 0140
@: info@rotterdamtouristinformation.nl
https://www.rotterdam.info/en/visit/good-to-know/rotterdam-tourist-information-desks

Aon Students Insurance
https://www.students-insurance.eu/en/home

Dutch Immigration Office *IND*
Tel: +31 88 043 04 30
https://ind.nl/en

Nuffic - Netherlands Organization for International Cooperation in Higher Education
PO Box 29777
2502 LT The Hague
Tel: +31 (0)70 426 0260
www.nuffic.nl

Contact details

Institution:	Erasmus MC – University Medical Center Rotterdam Wytemaweg 80 3015 CN Rotterdam The Netherlands
Web:	https://www.erasmusmc.nl/en/ https://www.eur.nl/en
Course:	**Master of Science in Molecular Medicine** Erasmus MC – University Medical Center Rotterdam
Program director:	Dr. Gert Jansen
Year one coordination:	Dr. Willy Baarends
Year two coordination:	Dr. Gerben Schaaf
Program coordination:	Marjoleine van Berckel Bik
Type of education:	two-year research master's program (120 EC)
Degree:	Master of Science, MSc
CROHO registration:	60279
NVAO-accreditation:	26-FEB-2004 – 25-FEB-2028
Contact:	Erasmus MC – MSc Molecular Medicine Room Ee-971 (postal address) / Ee-971 (visiting address) PO Box 2040 / Wytemaweg 80 3000 CA Rotterdam / 3015 CN Rotterdam The Netherlands
Tel:	+31-10-7044844
Email:	mscmolmed@erasmusmc.nl
Web:	www.eur.nl/en/research-master/molecular-medicine