From knowing to growing

EVER THOUGHT OF DOING RESEARCH?

Erasmus MC
University Medical Center Rotterdam

WELCOME TO ROTTERDAM!

Located in the heart of the bustling city of Rotterdam, Erasmus MC is committed to a healthy population and excellence in health care through research and education. Currently, it is the largest hospital in the Netherlands, with over 13,000 (medical) staff, researchers, and students. It is home to leading scientists in the (bio)medical field and the ideal place for highly talented, motivated and aspiring young researchers!

In 1966, the *Medische Faculteit Rotterdam* (MFR) was opened as the seventh medical school in the Netherlands and has since developed into what is now known as Erasmus MC. From the start, Erasmus MC has always been at the forefront of (bio) medical innovations and innovative (bio)medical research, ranging from delivering the first Dutch IVF baby in 1983 and boasting the first heart transplant in the Netherlands in 1984 to its active involvement in battling Covid-19 in 2020.

To this day, Erasmus MC continues to pay tribute to the original vision of its Founding Father, Prof. Andries Querido, by putting great emphasis on the importance of *research* and *scientific training* as part of our curriculum. Moreover, our current research masters in Clinical Research, Health Sciences, Infection & Immunity, Molecular Medicine, and Neuroscience offer an in-depth, high-level scientific training in (bio)medical research fields. Initially set up as (additional) master programs for medical students at Erasmus MC, these five programs have now developed into highly acclaimed, officially accredited, and internationally renowned research masters -- open to both Dutch and international students. A sixth program, Genomics in Society, is currently in the making.

Together with our PhD programs, the research masters constitute the Erasmus MC Graduate school. At the core of our educational philosophy is that a good scientific training requires active learning. This means that theoretical knowledge and practical skills are taught in an integrated way, and that we teach both PhD and research master students in small groups or sometimes even individually. Hence, students are stimulated to use their newly acquired knowledge actively, which both embeds their knowledge and improves the quality of their research.

Our two-year, English-taught research master programs provide students with a high-level scientific training in the (bio)medical field, ranging from basic research to general health care. The programs are open to both medical students as well as students with a bachelor's degree in various other disciplines, including Life Sciences, Behavioral Sciences, Medical Sciences, and Public Health Sciences. For Erasmus MC medical students the program can be adapted in such a way that it can be completed in addition to their medical studies.

Upon successful completion of one of the research master programs, students are awarded an internationally recognized Master of Science (M.Sc.) degree. Quite a number of graduates from each program continue their scientific careers by pursuing a Ph.D. degree.

Hopefully, this brochure will give you a taste of what we have to offer. We look forward to welcoming you to Erasmus MC in Rotterdam!

Prof. Maarten Frens
Vice Dean Erasmus MC

1 HEALTH SCIENCES

The research master program in Health Sciences provides students with a solid scientific foundation and high-level research skills, to perform cutting-edge research, and to develop a successful international career as researcher, in clinical medicine, drug research, public health or health policy development.

During this two-year, full-time Master of Science program, students major in one of the following fields: epidemiology, clinical epidemiology, genomic & molecular epidemiology, public health epidemiology, medical psychology, biostatistics, or health decision sciences & technology assessment. Taught by world-renowned international faculty, the program combines theoretical and methodological training with practical research training, and comprises both compulsory and elective courses. Individual assignments and presentations alternate with group work, discussions and case studies with fellow students. Selected Erasmus MC medical students are offered the possibility to attend the program combined with their medical master's program.

Theoretical training

The program starts with a selection of courses during the well-respected Erasmus Summer Programme. This three-week program provides a sound and up-to-date introduction to principles and methods of applied quantitative research in medicine and health care. The core curriculum includes courses in study design, data analysis, biostatistics and clinical and public health epidemiological research methods. Elective courses permit students to tailor the program to their own interests and professional needs. Most of the courses can also be followed as a stand-alone course. For a complete overview of courses, please check the academic calendar on www.nihes.com.

Research training

The research phase involves the design and implementation of a research project under the guidance of a personal supervisor. Research areas comprise, amongst others, major neurological and cardiovascular diseases, endocrinological determinants of diseases, pediatric studies, decisions in medical practice, and social factors affecting access to health care. Successful completion of the research training leads to a paper on the research project that is ready for submission to an international scientific journal.

Admission Requirements and Procedure

- Applicants should have a bachelor's degree in clinical medicine, public health, health sciences, clinical technology, nutrition, (medical) biology, pharmacy, human movement sciences, psychology, health economics, or a broad bachelor's education (e.g. university college) with subjects in these disciplines;
- A letter of motivation, CV, grades list and certificates are requested as part of the selection procedure for admission;
- A good command of written and spoken English;
- Application deadlines for non-EEA/EU students: March 1; for EEA/EU students: May 1.

FAST FACTS

Annual intake: **24 students** (average 2016-2020)

Male/Female ratio: **31-69%**

Nationality: **24 different** nationalities

Percentage studying for a **Ph.D.** after graduation: **62%**

Other career options: positions in **public health, health policy, clinical medicine**

Ratio Research: **1:1**

Ratio Student/teacher: **16:1**

The learning environment is fully international, from an international student population to faculty members with international experience and networks who teach and supervise students.

VI RI TAS

We have nearly 120 professors and teaching staff. Some of them hold a primary appointment at Erasmus MC and an adjunct professorship at Harvard T.H. Chan School of Public Health.

€2.209
(Statutory fee: EEA/EU students)

€19.600
(Institutional fee: EEA/EU students)

€19.600
(Institutional fee: non-EEA/EU students)

ORGANIZATION

Prof. Myriam Hunink *(Program Director)*
Dr. Annet Bout-Tellegen *(Program Coordinator)*

www.eur.nl/en/erasmusmc/healthsciences
www.nihes.com
nihes@erasmusmc.nl
www.facebook.com/nihesnl
www.twitter.com/nihesnl
www.linkedin.com/nihesnl

TESTIMONIAL

Linda Al-Hassany (The Netherlands)

"I have chosen the NIHES research master in Health Sciences to further enhance and develop my (international) research skills and knowledge with regard to Clinical Epidemiology. My future plan is to pursue my dream to become both an established medical doctor and researcher after obtaining my Ph.D. degree. The concept of translational medicine has fascinated me, and the research master in Health Sciences has provided me with a proper and solid foundation to further build my research skills to conduct research that moves from 'bench to bedside to community'.

The research master in Health Sciences is characterized by a challenging, stimulating, and international environment, which helps to meet its students' ambitions. If given the choice to do this research master again, I would absolutely go for it! I feel incredibly fortunate to have been given to chance to complete this research master successfully. It has offered me the unique opportunity to be in contact with and to learn from leading professors. This has been a great way of turning my wish to participate in top-level research into reality."

Linda Al-Hassany

2 CLINICAL RESEARCH

There is a great need for clinicians who want to combine patient care and research. The research master program in Clinical Research is a unique opportunity for clinicians and medical students to become clinical investigators and pursue an academic career. The program aims to train excellent students in research methodology within the clinical context of a wide range of research subjects performed by top-quality research groups at Erasmus MC. Clinical researchers aim to provide answers to prominent clinical questions such as:

- How can we provide the most accurate diagnosis?
- How can we offer the most effective treatment to our patients?

Patients are individuals who differ from each other in many aspects, which may influence how they present with symptoms of disease and disease severity, but also how they respond to therapy. Clinical researchers have a variety of research methods at their disposal to assess the accuracy of diagnostic tests among various subgroups of patients, to help clinicians make decisions in clinical practice, and to compare effects of different treatment regimens. The ultimate goal of clinical research is a tailor-made diagnosis and therapy for the individual patient.

Training in clinical research gives students the opportunity to contribute to the achievement of the ultimate goal during their career as a medical professional.

Research training

- Performance of research project embedded in clinical practice, using real-world hospital data or laboratory data;
- Writing, presenting and defending the Master of Science thesis.

The program offers research opportunities in a large variety of clinical fields such as endocrinology and neuro-endocrine immunology, cardiovascular research, hemato-oncology, medical oncology, gynaecologic oncology, pediatric research, obstetrics, urology, transplantation medicine, gastroenterology & hepatology, surgical research and musculo-skeletal science.

The research phase involves the design and implementation of a research project under the guidance of a personal supervisor. The program last two years. Selected Erasmus MC medical students are offered the possibility to attend the program combined with their medical master's program.

Educational program

The educational program covers the following aspects:

- Quantitative methods with an interdisciplinary blend of biostatistics, epidemiology, clinical trial design, medical informatics, and health services research, to prepare students for a career in patient-oriented and translational research, as well as more traditional clinical investigation;
- Orientation on a great number of research programs at the schools and departments mentioned above;
- Acquisition of specific knowledge of one of the specialist areas and preparation of a research protocol.

Admission Requirements and Procedure

- Applicants should have a bachelor's degree in Medicine, Biomedical Sciences or a broad bachelor education with sufficient basic subjects in medicine and/or biomedical sciences and/or medical biology;
- A letter of motivation, CV, grades list and certificates are requested as part of the selection procedure for admission;
- A good command of written and spoken English;
- Application deadlines for non-EEA/EU students: March 1; for EEA/EU students: May 1.

FAST FACTS

Annual intake: **12 students** (average 2016-2020)

Male/Female ratio: **31-69%**

Nationality: **24 different** nationalities

Percentage studying for a **Ph.D.** after graduation: **80%**

Other career options: **clinical**

Ratio Research: **1:1**

Ratio Student/teacher: **16:1**

The learning environment is fully international, from an international student population to faculty members with international experience and networks who teach and supervise students.

We have nearly 120 professors and teaching staff. Some of them hold a primary appointment at Erasmus MC and an adjunct professorship at Harvard T.H. Chan School of Public Health.

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€19.600
(Institutional fee: non-EEA/EU students)

ORGANIZATION

Prof. Meike Vernooij *(Program Director until November 2021)*
Prof. Kamran Ikram *(Program Director from November 2021)*
Dr. Annet Bout-Tellegen *(Program Coordinator)*

www.eur.nl/en/erasmusmc/clinicalresearch
www.nihes.com
nihes@erasmusmc.nl
www.facebook.com/nihesnl
www.twitter.com/nihesnl
www.linkedin.com/nihesnl

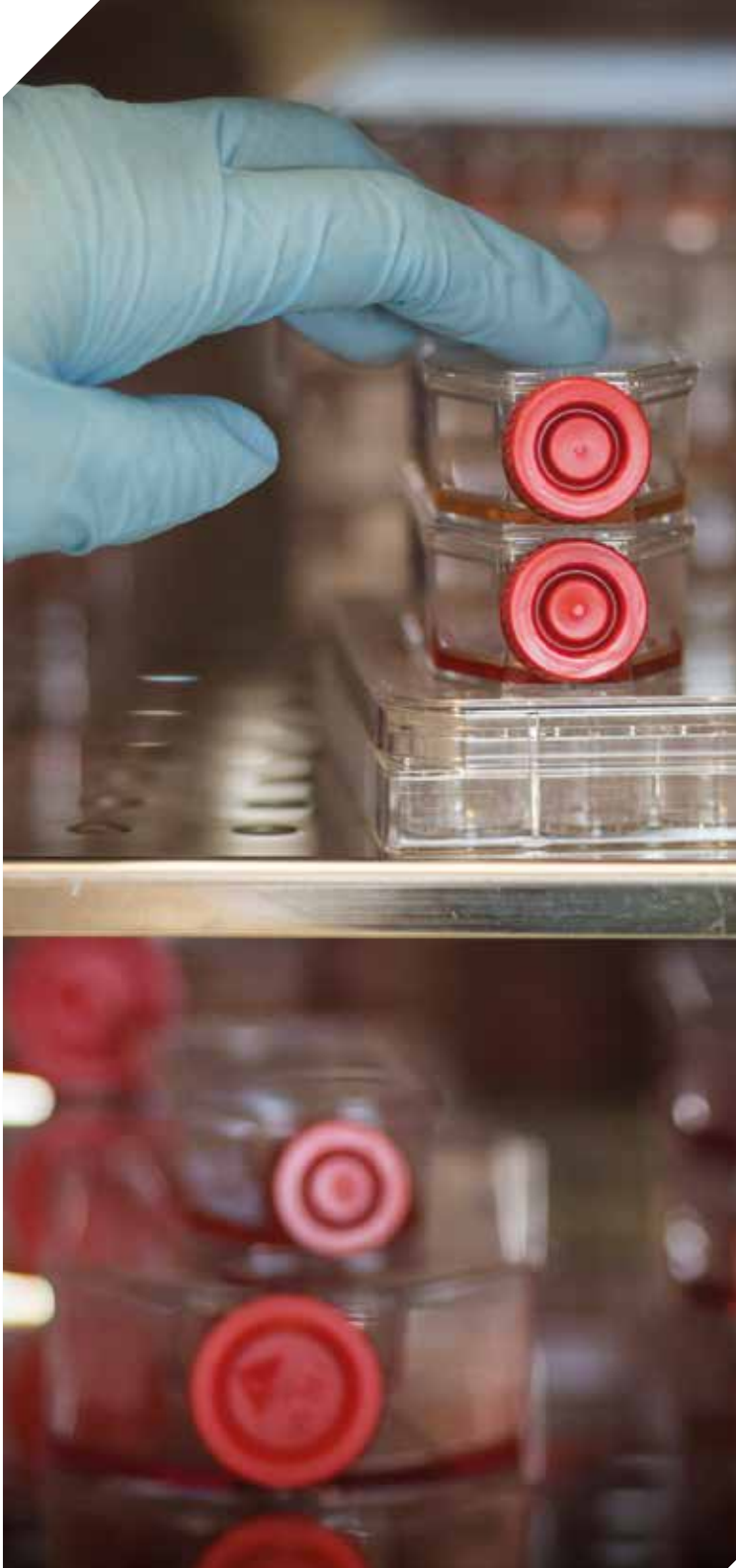
TESTIMONIAL

Saskia van Bergen (The Netherlands)

"The research master in Clinical Research is an excellent program which enables students to really dive into the various aspects of research and to put this knowledge into practice in their own research. The professors are very dedicated and are always willing to help you out, which results in new insights. Currently, I am doing research at Erasmus MC's Department of Traumatology which I hope to continue after I finish my research master. The research challenges you as a young academic to pose the right question which often is half of every solution. And as curiosity starts at the edge of what is known, the Clinical Research curriculum encourages us to dig deeper and contribute to medicine and the work that stands before us.

Would I opt for this research master again if given the choice? Most definitely! It offers me a unique opportunity to develop myself further, and formulate and answer questions that can bring medicine to the next level, which will ultimately benefit us all."

Saskia van Bergen



ERASMUS MC

Erasmus MC University Medical Center, more commonly known as Erasmus MC, Erasmus University's Medical School and its three university hospitals are all integrated into one campus and led by one Executive Board. The Education Center with 400 study spots and 40 classrooms and lecture halls for up to 6,000 students was opened in 2012 and subsequently won the Rotterdam Architecture Prize in 2013. In 2018 the old hospitals were replaced with a state-of-the art single-patient 1,000-bedroom hospital.

Erasmus MC is rated among the top research institutes of the Netherlands and participates in various nationally and internationally recognized research schools. In addition, our researchers work together extensively with other national and international health-care centers. Erasmus MC by far is the most multi-faceted university medical center in the Netherlands, including both a strong health sciences sector and leading research labs as well as covering the full range of medical specialties. Moreover, as part of Erasmus MC, the Erasmus School of Health Policy and Management (ESHPM) offers (post)graduate courses in health policy or health economics, and management positions in health care.

Erasmus MC
University Medical Center Rotterdam

SURE – RESEARCH MASTERS STUDENT UNION ERASMUS MC

SURE is the student organization that aims to bring all students from the five Erasmus MC research masters together (i.e., Health Sciences, Molecular Medicine, Infection and Immunity, Neuroscience and Clinical Research). The SURE Board is run by members from several of these masters. Ever wondered what the other research master students do at Erasmus MC? Would you like to meet people outside of your own research master and discuss research-related and research-unrelated topics? Then SURE is just the right student organization to join!

We will keep you updated on our upcoming events through our social media pages. For more information and registration, please check:

- sure.erasmus@gmail.com
- www.facebook.com/SUREMC
- https://www.linkedin.com/company/sure-erasmusmc/
- https://www.instagram.com/sure.mc/

SURE

ERASMUS UNIVERSITY ROTTERDAM...MAKE IT HAPPEN!

Erasmus MC is part of Erasmus University Rotterdam (EUR) -- an internationally respected, innovative and vibrant university, driven to make a positive societal impact. Helping students develop into critically-minded world citizens is key to EUR's educational vision.

EUR's strong orientation to 'make it happen' is evident in its people, educational programs and research. The EUR mission is based on shared core values. These values define what it means to be an 'Erasmian', i.e. being engaged with society, connecting, a world citizen, entrepreneurial and open-minded. Students are encouraged to think beyond their own assumptions, to explore other perspectives, to search for new solutions and to discover different insights... Academics, students and alumni at Erasmus University endeavor to solve complex global societal challenges, drawing inspiration from the thriving, modern metropolis Rotterdam!

Erasmus University Rotterdam

ROTTERDAM: THE IDEAL ACADEMIC LABORATORY

Pioneering, hard-working, entrepreneurial and no-nonsense: that is the city of Rotterdam, a modern metropolis built around the largest port in Europe. Home to citizens representing more than 170 (!) nationalities, 65,000 students and many multinational companies, Rotterdam is a microcosm of the world.

The city, which has been flagged as a 'must see' in *The New York Times*, the *Lonely Planet* and *The Guardian*, offers Erasmus University Rotterdam the ideal academic laboratory: the university plays a prominent role in making substantial contributions to improving health care and the economic and socio-cultural development of the city and the wider region. Together with the Municipality of Rotterdam, Port of Rotterdam Authority and Rotterdam Partners, EUR aims to raise the already-high profile of Rotterdam even further, helping to attract the highly educated, businesses, trade, visitors and engaged citizens from the Netherlands and abroad. The brand alliance shared motto 'Make it happen' perfectly reflects what the city stands for and puts Rotterdam on the map more clearly.

ROTTERDAM.
MAKE IT
HAPPEN.

[Adapted from: At a Glance]

PRACTICAL MATTERS: HOUSING, FINANCIAL SUPPORT AND STUDENT COUNSELING

Although Erasmus MC itself does not offer on-campus housing facilities, research master students can apply for housing through Erasmus University's central Housing Office.

Financial support is available, albeit on a very limited basis only, through competitive scholarships, including the Erasmus University Holland Scholarship, the L-EARN for Impact Scholarship, and Erasmus MC's very own Graduate School Scholarship.

Each research master program has its own program coordinator who usually is the main contact person for practical matters. They also serve as first point of contact if students need advice regarding their studies or other (personal) matters. In addition, Erasmus University Rotterdam offers student counseling with a team of careers guidance counselors, student counselors, and university psychologists.

Please check www.eur.nl/en/erasmusmc for further details and scholarship application deadlines.

3 MOLECULAR MEDICINE

The Master of Science in Molecular Medicine is a two-year research master program, focusing on molecular and cellular principles of health and disease. We aim to bring students to the forefront of current developments in biomedical science. You will learn experimental design and technical approaches currently in use, such as cell and tissue culture, live cell imaging, genomics and proteomics technologies, genetic modification, use of small animal models, and much more.

Exploring the Biomedical Revolution

Imagine...stem cells for tissue replacement...timely detection and therapy of developmental defects...reprogramming of the genome in treatment of genetic disease and cancer...genetic profiling and personalized drug design...

Great discoveries in the 20th century have laid the foundations for today's advancements in life sciences. Many new insights and therapeutic possibilities may develop as a result of a better understanding of actions and interactions of molecules and cells in development and disease.

Educational Program

Year 1 of the program (60 EC) includes the courses 'Developmental Biology', 'Molecular Biology of the Cell', 'Genetics', 'Biology of Disease', 'Contemporary Research Topics', 'Presentation Skills' and 'Report Writing'. In addition, you will perform a research project of approximately 6 months.

Year 2 (60 EC) consists of a full-year research project, with additional research-oriented courses, including writing a project proposal and a literature review. By the end of the year you will write, present and defend your master's thesis. Upon successful completion of the program you will be awarded the Master of Science in Molecular Medicine degree.

Career Perspectives

The Master of Science in Molecular Medicine degree may lead to a career in basic or translational research or to a position at a company or institute as a life science researcher.

Molecular Medicine graduates with a background in medicine are likely to become successful clinical researchers who are actively involved in the initiation and supervision of basic or translational research projects. More than 80% of the MSc Molecular Medicine students continue their training as Ph.D. student, either at Erasmus MC or at other internationally renowned institutes and universities.

Admission Requirements and Procedure

The Molecular Medicine research master program starts in September and can be completed in two academic years (120 EC). The program is taught in English.

The entry requirements are:

- A Bachelor of Science degree in one of the biomedical sciences (e.g. Biology, Biochemistry, Biomedical Sciences or Nanobiology), or a Bachelor of Science degree from a Dutch higher professional program in biomedical laboratory techniques (HBO-BML);
- Personal motivation, assessed by written statement and/or interview;
- Letters 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;
- Application deadline for non-EEA/EU students March 1; for EEA/EU students May 1.

Please note that for foreign candidates previous study results are used in the assessment; they must have a minimum GPA of 80%.

Medical Students

Admission to the program is also possible for medical students who have successfully completed their bachelor's program and who have shown an interest in biomedical research. Erasmus MC medical students are strongly advised to choose the minor "Biomedical Research in Practice" or an equivalent course on Molecular and Cell Biology as preparation for the M.Sc. program.

FAST FACTS

Annual intake: **15-25 students**

1999
2006

The program was first offered in **1999**; we have accommodated students from abroad since **2006.**

International outlook: The student body is very diverse with approximately **one third** international students (with nationalities ranging from Afghan to Zimbabwean), **one third** Dutch students with a biomedical bachelor's degree and **one third** students with a Bachelor of Science in Medicine degree from Erasmus MC.

Faculty members are directly involved in basic biomedical research and training, within many different Erasmus MC research departments, thus reflecting the multi-disciplinary nature of this program.

Departments involved include Biochemistry, Bioinformatics, Cell Biology, Clinical Genetics, Developmental Biology, Genetic Identification, Gynaecology and Obstetrics, Hematology, Immunology, Internal Medicine, Molecular Genetics, Neuroscience, Orthopaedics, Pathology and Experimental Pathology, Pediatric Endocrinology, Pediatric Surgery, Pediatric Oncology, Pulmonary Medicine, Radiation Oncology, Urology and Virology.

€2.209
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€19.600
(Institutional fee: EEA/EU students)

€19.600
(Institutional fee: non-EEA/EU students)

ORGANIZATION

Dr. Gert Jansen *(Program Director)*
Dr. Willy Baarends *(Board member)*
Prof. Gerjo van Osch *(Board member)*
Dr. Gerben Schaaf *(Board member)*
Marjoleine van Berckel Bik *(Program Coordinator)*

www.eur.nl/en/erasmusmc/molecularmedicine
mscmolmed@erasmusmc.nl

TESTIMONIAL

Katrin Pachler (Austria)

"I liked the practical aspect of this research master and the opportunity to choose your own project out of a lot of different research topics. The group size was nice and small with nearly 50% internationals. Currently, I am undertaking my Ph.D. at Erasmus MC. The master's degree in Molecular Medicine helped me a lot, because it showed me what it is like to start your own research project, from planning everything to writing academic papers. This is very useful for me now!

I believe that Molecular Medicine really prepares you very well for your Ph.D. It offers two long internships with many different laboratories and topics to choose from. In addition, you have a lot of useful and interactive courses. You can dive into your individual research project and learn a lot of different (research) techniques. Another great thing is that the number of students per year is small, so you have a nice small group, that usually gets along very well and does a lot together. That is especially nice as an international student.

I would definitely choose this research master again if given the choice. I learned a lot and it helped me get the position I have now. And I also met some of my closest friends here!"

Katrin Pachler

TESTIMONIAL

Gerben Schaaf (The Netherlands)

"Why I decided to work for this research master? Well, in fact my students are to blame ;-). As supervisor of Molecular Medicine students I was introduced to this particular research master when I first started here. I was quite impressed with the program right from the start, particularly because of the relatively long time the students dedicate to actually working in a lab. After a while I was asked to also teach in some of the courses, initially for just a few hours. I enjoyed that a lot and, luckily, I got involved in other courses and activities of the program.

I would like to continue combining doing research and be involved in the research master, which I think is a great combination. The total experience helps me to grow further in my academic career. I also hope that I can contribute to keeping our program at the same high level as well as updated to the current standards.

The Molecular Medicine research master aims at preparing students for a scientific career with an emphasis on acquiring actual lab experience in doing research through two intensive internships. There is a good balance with courses on essential theoretical skills and knowledge. I think that this is a clever package that allows the student to continue in science, but also helps to decide if indeed an academic career would fit their interest and ambition.

I will be working for the master still for a while more. And I do try to recommend colleagues to join the program. Teaching is very important to secure science for a next generation, although it seems to be valued not as much compared to research in the academic world. From my own experience with this master it is quite rewarding to see the enthusiasm for science in students and contribute to expanding that. At the same time the teacher also learns skills that you can use in your other activities (e.g., presentation skills, organizational skills, etc.). So, in a way, it is a win-win situation for all!"

Gerben Schaaf

4 NEUROSCIENCE

The main objective of the research master program in Neuroscience is to train talented students in the rapidly expanding field of neuroscience. The program prepares students for future fundamental research in various medical fields in which neuroscience becomes increasingly important; these include neurology, neurosurgery, ophthalmology, neuro-oncology, otolaryngology, psychiatry and gerontology. The program combines a broad range of tutorials and workshops in neuro-anatomy, neurophysiology, computational neuroscience, molecular biology, and behavioral neuroscience.

The research master program in Neuroscience is hosted by the Department of Neuroscience at Erasmus MC which provides an excellent basis for training in fundamental neurosciences. Students will become acquainted with all facets of modern neuroscientific research.

Within the Department of Neuroscience brain functions are studied at many levels, varying from individual genes to complex systems, from peripheral nerves to the central nervous system, from autonomic functions to consciousness, and from synaptic transmission to neuronal firing patterns. In addition, integration with clinical departments at Erasmus MC, Erasmus University's Psychology program, and the cooperation with TU Delft and Leiden University Medical Center within the so-called Medical Delta allow students to be introduced to all clinical, cognitive and computational disciplines of neuroscience.

Educational Program

The first year of the program starts with an introduction in August. The program is centered around 7 modules of 3 to 8 weeks each. Each module provides in-depth theoretical and practical training on important issues and essential techniques in neuroscience. The books *Principles of Neural Science* written by Nobel Prize winner Eric Kandel and colleagues and *Neuroscience* by Purves *et al*. provide the theoretical background to this part of the program.

Presentation skills are trained during the first year in journal clubs and tutor sessions. Students will also elaborate on a research topic of their choice. Supervised by a tutor, they have to complete an extensive literature search, conduct pilot experiments, and learn to formulate relevant and novel research questions. In addition, they have to design an experimental plan to tackle these questions. This results in a research proposal at the end of the first year.

During the second year students conduct the experiments as outlined in their research proposal. They will choose workshops to gain hands-on experience that will help them perform their research. After completing their research project students present their results in a master's thesis. The master's thesis is in the format of a paper that is of sufficient quality to be published in an international peer-reviewed journal.

Admission Requirements and Procedure

- Students with a bachelor's degree in one of the life sciences disciplines including medicine, pharmaceutical sciences, psychology, biology, biomedical engineering and nanobiology are invited to apply;
- National and international students who want to enter the fundamental research master program in Neuroscience will be selected on the basis of the performance in their bachelor's program, their curriculum and motivation. The most eligible applicants will be invited for an interview;
- This interview will be added to the overall competence chart and will be part of the final decision for admission;
- The top 20 applicants will be admitted to our research master program. Other eligible applicants will be added on a ranked waiting list;
- Application deadlines for non-EEA/EU students: March 1; for EEA/EU students: April 1.

FAST FACTS

Annual intake: **20-25 students**

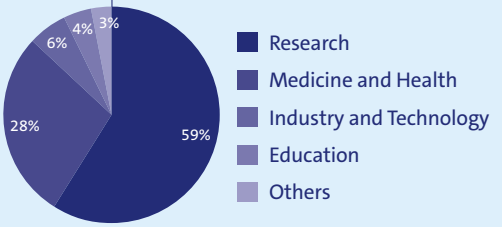
Male/Female ratio: **41-59%**

Nationality: **45-55%** international students

Percentage studying for a **Ph.D.** after graduation: **60%**

Number of research groups: **20** within the Neuroscience Dept.

Where do our students end up...



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ORGANIZATION

Dr. Marcel de Jeu *(Program Director)*
Prof. Chris de Zeeuw *(Scientific Board)*
Prof. Gerard Borst *(Scientific Board)*
Elise Buitenhuis-Linssen *(Program Coordinator)*

www.eur.nl/en/erasmusmc/neuroscience
www.neuro.nl
masterneuroscience@erasmusmc.nl

TESTIMONIAL

Tiago Beck (Germany)

"Neuroscience has always been my fascination. I have been researching, learning and taking part in neuroscience competitions to broaden my knowledge of the field and understand this incredibly complex organ. I see this master as the necessary foundation for any aspiring neuroscientist. I heard about this master while I was a member of a research group at Erasmus MC as part of my bachelor's thesis and it offered the best of all worlds: research, neuroscience, and Erasmus MC -- a prestigious and world-renowned research institution!

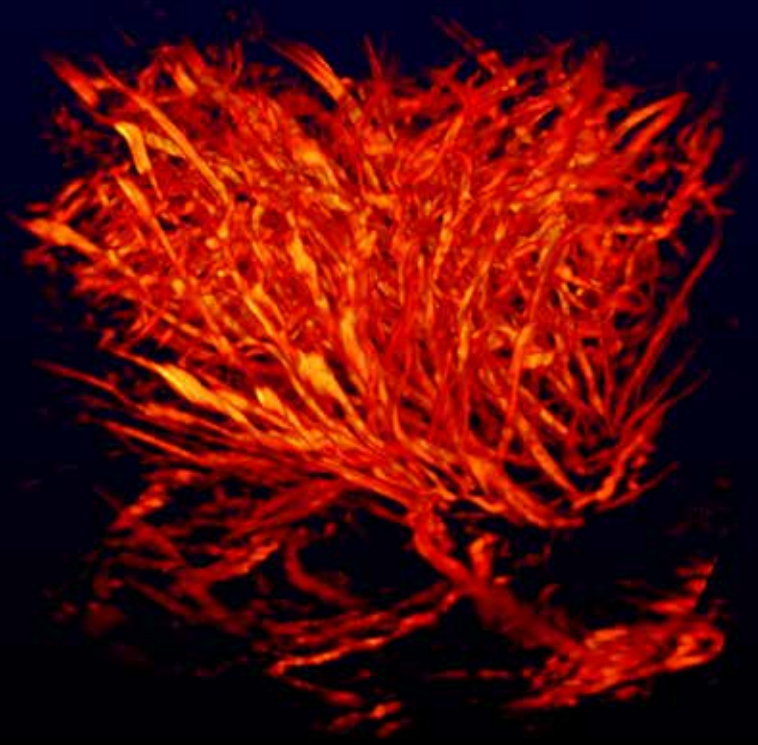
I am planning to start a Master's in Health Economics, Policy and Law at Erasmus University after this master. While I was originally planning to continue with a Ph.D. (and a small part of me is still playing with this idea), the research master in Neuroscience has offered me a number of opportunities that have peaked my interest to pivot towards health-care management. Specifically, as Student Chair of the Education Committee of all five research masters, it is a fun challenge to coordinate different projects and to be involved in allocating grant money for the so-called HOKa projects. This is further developed through my research project that requires a lot of management and organization with(in) a number of different departments (the Dept. of Neuroscience with the Dept. of Neurosurgery, the KNF, and Dept. of Pain Medicine) for planning surgeries and necessary outcome measures for my research.

Tiago Beck

The quality of research done at Erasmus MC is incredible. I am grateful for the opportunities offered and the freedom and capacity for research that I am able to do as part of this master and in a greater sense at Erasmus MC. I think the skills I have developed here, the opportunities I have had, and the connections I have made, have helped me become a self-disciplined, forward thinking, and communicative researcher.

I would certainly opt for this master again if given the choice. While the first year was extremely tough and stressful, I have learned and developed strategies to deal with these challenges, specifically by using my time effectively, studying efficiently, and most importantly in how to communicate with professors, supervisors, and fellow students. Apart from the educational program, it is the research projects which I am forever grateful for. The opportunity to work on a project similar to what originally peaked my fascination with neuroscience is something I could have never imagined. I feel very fortunate to be a part of my research group, with a very supportive and experienced supervisor, where I am given the freedom to develop my own ideas and make valuable contributions to the project."

"FINDING THE BRAIN TUMOR'S ACHILLES HEEL"



By Sadaf Soloukey *et al.* 2020, was selected as one of the 15 images to be displayed in the FENS new website and shared via Instagram and Twitter.

This image shows a 3D-reconstruction of a Low Grade Glioma (LGG), taken from a patient's brain during awake surgery using a brand new technique called 'functional Ultrasound' (fUS). The brain tumor's vasculature seems to originate completely from a single vessel of origin - its Achilles heel- arborizing into a larger tree-like structure. Never before have surgeons or researchers had access to an in-vivo vascular map of the human brain with such level of detail (300 µm) and imaging depth (5 cm). fUS has the potential to revolutionize surgical, neuroscientific as well as oncological practice - just by showing us what has always been there.

The FENS-ENJ Image Competition was held for the first time in 2020. Over 80 Images were submitted, from a wide range of topics.

5 INFECTION AND IMMUNITY

The research master program Infection & Immunity is a two-year, English-taught, international program that aims to train students in translational research at the crossroads of infection and immunity by top-quality research groups at Erasmus MC. With new epidemics unfolding regularly (at this very moment even a current issue because of the corona pandemic!) and rapidly evolving immunotherapies, amongst others, knowledge of infectious and immune diseases has never been more critical. The master program combines intensive training in fundamental and advanced immunology and microbiology with extensive training in clinical and population-based research. After two years, the research master program Infection & Immunity will result in a master's thesis, to be presented at the yearly Research Master Infection & Immunity Symposium. In the past, Infection & Immunity has been awarded the TOP-rated program seal several times.

Mission and vision

It is our mission to select and train excellent students at an early stage of their careers in performing top research in the field of infectious and immune diseases, covering the complete field of host-microbe interplay and autoimmunity, challenging them to become translational investigators, fostering them and committing them to the academic world.

Recent developments in (bio)medical technologies provide novel tools to gain in-depth knowledge of the fundamental mechanisms of infectious and immune diseases. Translational research is the hallmark of Erasmus MC. Its quality relies on strong communications between clinicians and basic scientists. Undoubtedly, Erasmus MC continues to invest in a new generation of translational scientists with this research master program, which will ultimately strengthen and improve Erasmus MC research.

Educational Program

The main topics in the program covered include:

- Immunology: fundamental, organ-specific, transplant immunology, auto-immune diseases, immunodeficiencies;
- Infectious diseases: basic and advanced microbiology, emerging infectious diseases, host-microbe interplay, role of genetic variation in host and microbe, chronic inflammatory diseases, vaccine development;
- Epidemiology of infectious diseases: epidemics and pandemics;
- Animal models;
- Bio safety;
- Students need to do two research internships, one of five months and one of 10 months, of which the second one may also be done outside Erasmus MC or even abroad.

Admission Requirements and Procedure

- Application form, CV, motivation and recommendation letters, certificates and and interview;
- The fulltime program starts around September 1 with a compulsory Summer Course;
- Application deadline: April 1.

FAST FACTS

Annual intake: **18-20 students**

Male/Female ratio: **1/3** male, **2/3** female

Nationality: **75%** Dutch **25%** different nationalities

Percentage studying for a **Ph.D.** after graduation: **90%**

Students are **highly satisfied** with the program and feel **very committed**

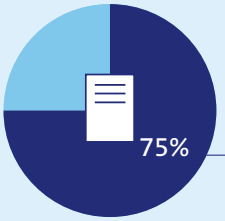
600 hours of classes/courses, plenary or in smaller groups

Ratio Student/teacher: **200 teaching staff 20 students**

Small groups and **personal approach**

Digital Learning Platform, covering the full curriculum and everything the student needs during his/her studies

All **student communications** run through this platform



About **75%** of the program consists of research projects at various labs, including Immunology, Virology, Microbiology, Gastroenterology, Neurology, Neuro-Immunology, Lung Diseases, Immuno-Oncology, Rheumatology, etc.

€2.209
(Statutory fee: EEA/EU students)

€19.600
(Institutional fee: EEA/EU students)

€19.600
(Institutional fee: non-EEA/EU students)

ORGANIZATION

Dr. Jan L. Nouwen *(Program Director until spring 2022)*
Dr. Astrid Heikema *(Program Coordinator, future Program Director)*
Dr. Frank L. van Vliet *(Managing Director)*
Shaun Girigori *(Educational Service Center)*

www.eur.nl/en/erasmusmc/infectionandimmunity
www.infectionimmunity.nl
msc.infection.immunity@erasmusmc.nl

TESTIMONIAL

Shweta Mahajan (India)

"I am from a small city in India (so basically the size of Rotterdam) and I was born in a middle-class family to hard-working parents. We were taught to feel gratitude every moment but never settle. I have been interested in biology since my middle school so I opted to do a bachelor's in Biotechnology. In my second year I really started to like immunology and I decided to do internships during every summer to measure where my interests lie. I got an internship at the Max Planck institute in Germany where I learnt a lot and most importantly figured out that this is what I wanted to do for my future. I thought the next best thing was to go to the U.S. and do my master. However, upon further research I concluded that going to the U.S. was not an economically sound decision. The Netherlands offered me the perfect opportunity to do a translational master's in Immunology in an international environment without taking on a huge debt.

The I&I research master taught us the basics of virology, microbiology and immunology. The professors would share their research, we could ask all the questions we wanted and there would be great discussions. We also did assignments teaching us how to design a clinical trial and mouse experiments to test a hypothesis or an investigative product. I did my first internship in tumor immunology trying to isolate T cells for the treatment of chronic hepatitis and I fell in love with immunotherapy. For my second internship I wanted to work with how viruses can be used as immunotherapeutic agents. My internships taught me how to independently work in the lab and how to present and write about your work. The master also offered us the opportunity to go to conferences via the Infection and Immunity fund. I was able to listen to latest unpublished research, make posters about my research and participate in competitions as well. Moreover, we could also attend a wide range of courses organized in Erasmus MC via the master for free and we went for a site visit at Janssen vaccines.

Shweta Mahajan

As an international student this master was a very special experience. I came to this country alone, with no family and no friends. The coordinators took care of each and every student professionally and personally. They understood that every student in the master is unique and always created an atmosphere of support for us. My classmates were immensely helpful and I ended having a full family of friends. We did Sinterklaas, Thanksgiving, Diwali, Christmas and took vacation together. This master is unique because of the diverse range of opportunities it offers combined with education. The organizers and teachers of this master are always open to suggestions and since I graduated I have seen many positive changes happen in this master based on our experience

I wanted to do a Ph.D. and this master played a major role in building my foundation. It shaped me into an analytical, confident and hardworking researcher. In the future I would like to go back to India and work towards building collaborative research between Indian and European universities and implement similar master programs in India. My experience during this master has certainly been a major leap towards my life goals and I would certainly go back in time do this master again if given the choice!"


Deloitte.
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6 GENOMICS IN SOCIETY*

* Pending accreditation by the NVAO as Research Master

Definition Genomics: "Genomics is an interdisciplinary field of biology focusing on the structure, function, evolution, mapping, and editing of genomes"

Introduction: general description program

The field of genomics is the arena for fast technological developments that impacts society. In recent years, genomic scientists have not only unravelled the human genome, but also developed the technology to rewrite it. The term 'designer baby' emerged in the media and societal worries about how gene-editing technology may alter our species need to be addressed.
As the genome may be analysed in-depth, big data are generated that may provide individuals and families with knowledge about their genetic susceptibilities that could contribute to disease prevention.

From a governance and health-care system perspective, prevention may sound like a blessing, however, the psychological challenge of having to live with the threat of a genetic disease to one-self and family members, is often a significant burden. Besides, offering genomic knowledge to all for prevention purposes presents with numerous societal challenges such as; financing, privacy, scalability and regulation. In short, the technological advances in genomics are well ahead of what our society is ready for. These examples, and many more, illustrate that genomic research needs to be aligned with the needs and values of society, so-called 'societal alignment.'

General content

The research master program* Genomics in Society trains the next generation of genomics researchers for positive societal impact. Students in the program will be equipped to work in an interdisciplinary context, think critically and constructively about the societal and ethical aspects of genomics, while having a thorough understanding of genomics to contribute to a positive

* Erasmus MC wants to launch a new research master program in 2022, Genomics in Society. An application for accreditation by the NVAO has been submitted and by March 2022 it should be clear whether accreditation is granted.

FAST FACTS

- We believe our enthusiasm for Genomics in Society is contagious!
- Openness, curiosity, and empathy are our core values
- Genomics in Society takes place in an international classroom
- In order to achieve an interdisciplinary profile we admit students from both biomedical as well as social sciences study directions
- We use active teaching methods, blended learning and design thinking
- Programmatic assessment focuses on stimulating your learning curve and is part of our assessment plan
- Our educational environment that is fun, fosters curiosity, embraces learning from mistakes and has an open-door climate.

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impact of genomics in society. Furthermore, students will build on 21st century (research) competencies, that include collaboration, communication, creativity and innovation.

Educational program

During the first year students develop an interdisciplinary language; combining deep knowledge of genomics with knowledge of ethics, communication, governance, psychology and entrepreneurship. The Genomics & the City assignment, that lasts the entire first year, trains students in the various aspects of co-creation, innovation and entrepreneurial learning. They will use design thinking to identify (genomic) issues from society and develop solutions that have the potential of direct social impact. As such, students will work in teams on building bridges between genomics and society.

In the second year, students are embedded in the existing research groups of which they will be a full-fledged member. Going through the research cycle, students will work towards a thesis that is publishable in an international, peer-reviewed journal. When the thesis is completed, the final course 'Innovation' aims to translate the research back to society, which is of essence for excellent research.

Admission Requirements and Procedure

Applicants should have a bachelor's degree with a minimum of 10 EC in statistics and demonstrable affinity with genetics;

- A letter of motivation, CV, grades list and certificates are requested as part of the selection procedure for admission;
- A good command of written and spoken English;
- Application deadlines for non-EEA/EU students: March 1; for EEA/EU students: May 1.

Career perspectives

The Master of Genomics in Society degree may lead to a career in genomic and social science research, to a position at a company or institute as a (genomic) impact researcher, or as a university teacher, policy maker, (science) communicator or consultant.

ORGANIZATION

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https://www.eur.nl/en/erasmusmc/research-master/genomics-society


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