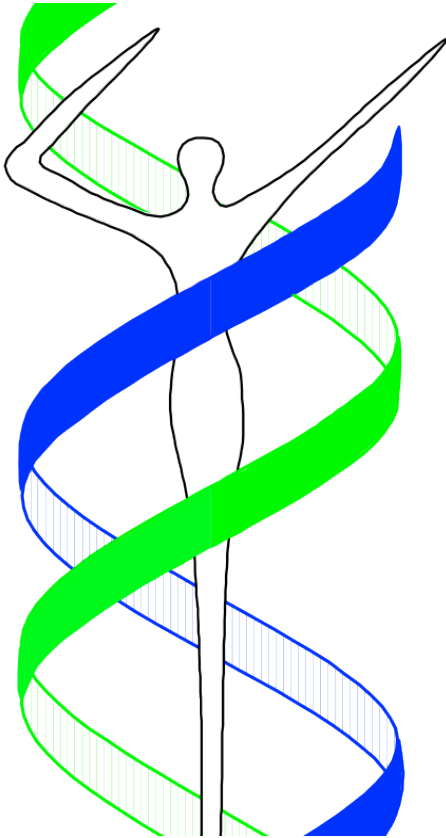


Teaching Program of Biomedical Sciences



*For PhD students of
Biomedical Sciences
at Erasmus MC*

Edition 2018 -2019

PhD Teaching Program Committee

*Scientific Director:
Dr. Ir. Niels Galjart*

*Coordinator:
Marjoleine van Berckel Bik
Erasmus MC – University Medical Center
Biomedical Sciences
Postal address Room Ee-971
Visiting address Room Ee-971
P.O. Box 2040
3000 CA Rotterdam
Phone: 010 - 7044844
e-mail: m.t.vanberckelbik@erasmusmc.nl*

Note: For readability only the male nouns were employed in this text. When applicable, please, read she/her instead of he/his.

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Overview of the Biomedical Sciences PhD program

Becoming a skilled, critical and independent researcher is the most important criterion for receiving a PhD degree at Erasmus MC. This capacity is mainly monitored by the supervisor and (co)promotor of the department, in consultation with the coaching committee (see below). The research project should culminate in (first author) paper(s) and a well written thesis. Besides doing research, PhD students from 7 departments and 3 institutes at Erasmus MC (Cell Biology, Molecular Genetics, Clinical Genetics, Developmental Biology, Genetic Identification, Biochemistry and Bio-informatics, Biomics, Erasmus Stem Cell Institute and Optical Imaging Center) also have to follow the *Biomedical Sciences PhD program*, which is briefly described below.

The *Biomedical Sciences PhD program* is embedded in the Graduate School MGC South West Netherlands (shortly: MGC). The additional requirements, courses, and modules of this program are aimed at further improving education and training of PhD students at Erasmus MC. In addition, the *Biomedical Sciences PhD program* incorporates obligatory courses offered by the Erasmus MC. We adhere to the Erasmus MC requirement that a total of 30 training credits (ECTS) points should be obtained by the student at the end of the PhD. Students can obtain ECTS points for courses, lectures, and meetings.

Participation in the *Biomedical Sciences PhD program* is in principle mandatory for all PhD students working in one of the 10 participating departments/institutes. There are obligatory (see pages 5, 6 for overview) and non-obligatory (see page 11 for overview) parts to the program. The student is free to compile his own individual program as far as the non-compulsory part is concerned. The PhD student will receive a certificate after a course has been followed (important for obtaining ECTS points). PhD students should list the courses and lectures in a portfolio as part of their CV at the end of their thesis.

A Teaching and Supervision Plan (TSP), that describes the research project of the PhD, as well as tasks, obligations, and supervision issues, courses/seminars to be followed, and progress during the PhD, should be drawn up by the PhD student together with the supervisor at the start of the PhD. The TSP is discussed with supervisor and PhD coordinator (i.e. Marjoleine van Berckel Bik) at the onset of the PhD. At this point all rules and regulations with respect to the PhD research project and the obligatory and non-obligatory parts of the PhD program are explained. The TSP is registered on forms, copies of which are handed to "personeelszaken" and keep a copy for your own file. The TSP is regularly updated during the PhD. In agreement with the TSP students register for courses and seminars that they find interesting. Registration is usually done through the websites of either the MGC postgraduate school or MolMed postgraduate school. Note that courses given by the MolMed school are not for free (there is a fee involved on a discount basis).

Coaching of PhD students

It is considered of great importance that PhD students function optimally, and consequently, we want to ensure that their research projects come to fruition within the set time limits. To reach this goal, a coaching committee ("begeleidingscommissie") will be formed for each PhD student, consisting of 2 scientists that are familiar with the field of research of the student's project. These scientists are invited by the PhD student and daily supervisor, and can be from inside or outside the institutes. The PhD student will have a say in the choice of members of the coaching group. There will be no relationship between membership of the coaching group and that of the promotion or opposition committees which are normally formed at the end of the PhD project. The coaching group should have been formed 6 months after the start of the appointment of the PhD student.

First year of the PhD

The first year of the PhD contains several important courses and evaluation moments. They are explained below.

Basic course

Students have to follow one basic course entitled "Genetics" (see page 7). The course is concluded by an exam. Students that fail an exam are entitled to a re-examination, which should take place maximally 6 weeks after the first exam. The re-exam will be given in consultancy with the respective course coordinator. Re-exams can be in written or oral form, in the latter case more than one examiner can be present (for example, the course coordinator and one or more of the lecturers). Students that fail both the exam and the re-examination have to do the course again in the next year, and pass the exam (re-exam). Only after passing an exam will the student obtain ECTS points for the given course.

Special topics courses

In addition to the basic course, the students have to follow a special topics course on a topic of interest (see page 8). For 2019 the topic is '.....'.

Evaluation meetings. The PhD student and his supervisor have evaluation meetings ('beoordelingsgesprekken') after 6, 9, and 12 months to discuss the development of the research project and progress of the PhD student. Evaluations will include the performance in the mandatory PhD program. Forms for this meeting are sent by the personnel department ('personeelszaken'). Forms should be filled out and handed back, the original to 'personeelszaken' and one copy for your own files. In cases where the PhD student has not fulfilled all of the obligations the PhD contract may be continued but can become a 'voorwaardelijk dienstverband' (conditional appointment).

1st year presentation. At the end of the first year the PhD student presents the progress of his project as well as his future plans to his supervisor(s) and coaching group. It is recommended that the courses/seminar choices are also presented. Based on the presentation, scientific progress, and performance in the special topics courses, the coaching group will make a recommendation about whether or not to continue the PhD. Thus, this progress report serves as an important evaluation moment of the PhD student. Evaluation is formalized by the head of the department. A negative conclusion may result in a suspension from the PhD appointment.

Problems during the PhD and feedback

In case of problems, for example between the PhD student and his supervisor, the PhD student can consult a 'confidante', a person who will regard all information received from the PhD student as confidential and who will act in the best interest of the PhD student only. We have several persons from different participating departments/institutes acting as 'confidante' (see below). The PhD student is free to go to any of the 'confidantes' to ask for assistance. The confidante in turn can seek contact with the PhD student, coaching group, or the daily supervisor when necessary. This division of tasks ensures that coaching groups and confidantes not only evaluate and help the PhD student, but also monitor guidance by (new) supervisors. This information is used to optimise future guidance.

Confidantes

Willy Baarends
Tokameh Mahmoudi
Vincenzo Bonifati
Jeroen Essers
Niels Galjart

Developmental Biology
Biochemistry
Clinical Genetics
Molecular Genetics
Cell Biology

Overview of mandatory part of PhD program

(exemptions are possible in individual cases for 2.2, 2.3, 2.4)

1 Biomedical Sciences PhD courses and tasks

Year	Course/task and approximate period	Explanation on page	ECTS points
1	INFO ON THESE COURSES WILL FOLLOW LATER		
	- <i>Genetics</i> 6 lectures, ~1.5 hours per lecture (May-June, followed by exam) Coordinator: Manfred Kayser	7	3
	- Special topics course on ?? Coordinator: Niels Galjart, Joyce Lebbink	8	2
	- <i>At the end of year 1</i> presentation of 1 st year results and future plans to supervisor and coaching group (2 members)	4	1
2 - 3	- <i>Teaching</i> PhD students can develop teaching skills for example by guiding BSc or MSc students.		4-5

2 MGC and Erasmus MC PhD courses

2.1 Safe Laboratory Techniques (“Veilig werken in Laboratoria”)

A 'one day' course that is intended to refresh the memory and to supplement courses that may have been followed earlier. The following points will be addressed: safe microbiological techniques; radionuclides; carcinogenic agents; blood, viruses; radiation. This course has to be taken in the first year. The course will be given twice a year, alternately in English and Dutch. The course will be given in collaboration with the Department VSM of the LUMC. Apply through the MGC website: <http://medgencentre.com/Home/>

2.2 Working with Test Animals (“Proefdierkunde”)

Intended for those PhD students that will work with test animals in vivo. The Medical Faculties of Leiden and Rotterdam are offering a course with official recognition. Apply to the LUMC in Leiden (PDC-LUMC/Cursuspdk@lumc.nl) or the faculty in Rotterdam http://intranet.erasmusmc.nl/edc/course_las/?lang=en

2.3 Biomedical English Writing and Communication

This course has two main objectives: (a) to provide practical guidelines for writing well-structured and fully readable biomedical articles and (b) to provide a framework for effective oral presentations. Apply to the Faculty in Leiden (for application of more information see <http://hum.leiden.edu/languagecentre/english/academic-english.html>) or in Rotterdam <http://intranet.erasmusmc.nl/onderzoeksbeleid/carriere/phdprogram/coursesintra/english/?lang=en>, e-mail to c.penders@erasmusmc.nl. Students from Rotterdam should do this course in their 2nd year, so that they have enough data to complete an article by the time the course ends.

2.4 Statistics

Although many PhD students have already taken courses in statistics during their undergraduate studies, we consider a basic course on statistics important, since many research approaches in biomedical sciences rely heavily on statistics. We recommend you to follow the course in your second year. The obligatory basic course on statistics lasts one week and is given in the spring. See

<http://intranet.erasmusmc.nl/onderzoeksbeleid/carriere/phdprogram/coursesintra/statistiek2012/>

2.5 Integrity in Science

Starting January 2014 the Department of Medical Ethics and Philosophy will organise a one-day course 'Integrity in Science'. The course is obligatory for all PhD students. We recommend you to follow the course in your second year.

Science is a competitive field. There is a lot at stake, reputations, careers, money. The downside is that there is a lot of pressure and this may lead to disputes on authorships, data massage, incomplete informed consent, and etcetera. When is a researcher a person of integrity? And is it possible to combine integrity with a successful scientific career?

During this course we will share information on rules and regulations within the Erasmus MC, exchange experiences, analyse cases and discuss ethical dilemmas, but will also look at possible solutions and support.

See http://www.erasmusmc.nl/ethiek_filosofie_geneeskunde/onderwijs/wetenschappelijke-integriteit/?lang=en for detailed information and registration.

2.6 Work and literature discussions

These are activities within the own Institutes.

2.7 MGC Promovendi workshop

PhD students of the MGC will present their work to each other followed by discussions. The format is a yearly three-day meeting outside town. These workshops generally take place in spring. Further information will appear in the MGC-bulletin and on the website. PhD students will also receive a personal invitation. They should attend at least three workshops.

<http://medgencentre.com/Home/>

Summary of mandatory 1st year Biomedical Sciences PhD courses

Genetics course (3 ECTS)

Coordinator: Manfred Kayser

Six (1.5-2 hour) lecture sessions. The exam immediately follows the lectures series. It will consist of 6 open questions, one question per lecture. Questions will be provided and graded by the lecturers.

Overview of Genetics lecture series:

(see <http://www.erasmusmc.nl/biomedicalsciences/education/PhD/> for syllabus and schedule)

Session	Title	Lecturer
1	From DNA to diseases	Vincenzo Bonifati
2	Cancer genetics	Riccardo Fodde
3	Genetic association and prediction analysis	Fan Liu
4	Epigenetics	Joost Gribnau
5	Human evolutionary genetics	Manfred Kayser
6	Functional genetics using model organisms	Wim Mandemakers

Recommended text books:

Human Molecular Genetics by Tom Strachan and Andrew Reeds, Garland Science / Taylor and Francis.

Human Evolutionary Genetics: origins, peoples & diseases by Mark A. Jobling, Matthew Hurles, and Chris Tyler-Smith, Garland Science / Taylor and Francis.

INFORMATION ON THE GENETICS COURSE WILL FOLLOW LATER

Special Topics Course: '.....?.....' (2 ECTS)

Coordinators: Niels Galjart, Joyce Lebbink, and ?

Overview of optional courses

This is a flexible program that can change on a yearly basis depending on scientific developments. Courses may last from 1 day up to 2 weeks and most are held once a year. There are no formal examinations, but students wishing to attend are obliged to be present in all classes ('aanwezigheidsplicht'). On top of the attendance of lectures and demonstrations, the courses may demand an amount of self-study, such that the time needed per course will be exceeded. Details for each course are given in the appendix of the MGC Teaching programme booklet, which also includes a preliminary schedule, that may help in planning. The courses are also announced in the MGC-Bulletin, which appears 2 times per year, by posters, and on the web sites of MGC <http://medgencentre.com/Home/> and MolMed <https://www.molmed.nl/>

At present the following courses are planned:

Organised by MGC (for participation apply through the MGC web site).

- Next Generation Sequence data analysis
- From Molecular pathogenesis to targeted therapy
- Technology Facilities
- Genetic engineering in model organisms: technology and application in basic and medical research
- Workshop 'Share your biotechnology research with a broad audience'
- Functional imaging and Super Resolution
- Python programming
- Version control with Gt
- Scripting for Life Sciences Researchers

Organised by MolMed (for participation apply through the MolMed website, note that courses are not for free, there is a fee involved on a discount basis, so consult your supervisor !)

- Basic and Translational Oncology
- Analysis of microarray gene expression data
- SNP Course

Organised by the Erasmus Optical Imaging Centre (for participation see <http://www.erasmusmc.nl/oic/>, note that this course is not for free, so consult your supervisor !)

- OIC imaging course

Other possibilities

Courses and workshops of third parties,

for example the EMBL. The individual PhD student is encouraged to seek for himself appropriate opportunities. The following site may help: <http://www.embl.org/>

Visits to congresses

It is strongly recommended that each PhD student visits one or more international congresses during his PhD study. The PhD student has to consult his supervisor as needed.

Important and/or handy website links

Rotterdam pages

PhD education in Rotterdam:

<http://intranet.erasmusmc.nl/onderzoeksbeleid/carriere/phdprogram/?lang=en>

<http://intranet.erasmusmc.nl/onderzoeksbeleid/carriere/phdprogram/coursesintra/?lang=en>

'Teaching and coaching plan' form (OIO forms):

<http://intranet.erasmusmc.nl/formulieren/1726141/>

'OIO- Staff Appraisal' forms (6 and 9 months):

<http://intranet.erasmusmc.nl/formulieren/1726141/>

PhD portfolio at Erasmus MC:

<http://intranet.erasmusmc.nl/onderzoeksbeleid/carriere/phdprogram/PhDbrochure2014.pdf?lang=en&view=active>

Overview of PhD program and its courses:

<http://www.erasmusmc.nl/biomedicalsciences/education/PhD/>

General overview Biostatistics and Research Methods:

<http://intranet.erasmusmc.nl/onderzoeksbeleid/carriere/phdprogram/coursesintra/statistiek2012/>

Integrity in Science:

<http://intranet.erasmusmc.nl/onderzoeksbeleid/wi/?lang=en>

See http://www.erasmusmc.nl/ethiek_filosofie_geneeskunde/onderwijs/wetenschappelijke-integriteit/?lang=en for detailed course information and registration.

Overview of how to calculate ECTS points, and of ECTS points given for the courses organized by MolMed postgraduate school:

<http://www.molmed.nl/images/Richtlijnen%20PhD%20traject%20MolMed%20Appendix%204.pdf>

Gratification researchers in training (€ 750,-- bonus for OIOs):

<http://intranet.erasmusmc.nl/graduateschool-foreignservices/fin-regelingen/OIObonus/>

Allowance for printing costs EUR thesis:

<http://intranet.erasmusmc.nl/onderzoeksbeleid/carriere/phdprogram/4959731/>

Available PhD positions:

<http://www.erasmusmc.nl/werkenbij/vacatures/?lang=en&functieSelect=Wetenschap+en+O%26O&locatie=Alle+locaties&afd=Alle+afdelingen&zoekVacature>

Rotterdam/Leiden pages

MolMed postgraduate school:

www.molmed.nl

MGC postgraduate school:

<http://medgencentre.com/Home/>

Medical Faculty Leiden:

<https://www.lumc.nl/?setlanguage=English&setcountry=en>