



Teaching and Examination Regulations

MASTER's Degree Programme

Biomedical Sciences (66990)

B. Programme-specific section

Academic year 2017-2018

Section B: Programme-specific section

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Section B: Programme-specific section**1. General provisions****Article 1.1 Definitions**

Not applicable

Article 1.2 Degree programme information

1. The programme M Biomedical Sciences, CROHO number 66990, is offered on a full-time basis and the language of instruction is English.
2. The programme has a workload of 120 EC.
3. A unit of study comprises 6 EC or a multiple thereof. The units listed below have a different size:

Course Code	Name	EC
AM_1161	Scientific Writing in Engl (AM_BMED)	3
AM_470707	Ethics in life sciences	3
AM_471135	Literature thesis Biomed. Sc. (Research)	9
AM_1021	Microbial Genomics	3
AM_1179	Epidemiology	3
AM_1180	Clinical Development and Clinical Trials	3

Article 1.3 Intake dates

The programme is offered starting in the first semester of the academic year only (1 September). The intake date mentioned in this paragraph ensures that a programme can be completed within the nominal study duration set for the programme.

2. Programme objectives and exit qualifications**Article 2.1 Programme objective**

The programme aims to equip the student with the knowledge, skills and understanding required to operate as an independent professional within the disciplines covered by the Master's programme, and to be a suitable candidate for a subsequent career in biomedical research. The Master's graduate should be competitive in his or her field at both the national and the international levels, in relation to both PhD research programmes in national and international scientific institutions or employment in trade and industry or government. Having completed the programme, the student should have developed a critical scientific approach and an awareness of the ethical and societal aspects of the biomedical sciences in general, and the field addressed by the Master's specialization(s) in particular. Graduates are specialized in one or two specific disciplines, with a second year profile focused on research or a profile focused at health and society (I/C/S/E profile).

Article 2.2 Exit qualifications

In all events, a graduate of the degree programme will have the following:

Dublin descriptor 1: Knowledge and understanding

The graduate should have specialized theoretical and practical knowledge of Biomedical Science notably within the field of his/her specialization.

The graduate:

- masters the fundamental concepts of modern biomedical sciences and understands the state of the art in terms of developing theories and insight into the most important current research issues in the biomedical discipline in which the student has specialized.
- appreciates the place of his/her specialization within the biomedical and the natural sciences.
- is able to appreciate the scientific and social relevance of biomedical sciences, and of current research in the area of specialization.
- is able to think in multidisciplinary terms, and possesses an understanding of other

<p>disciplines (and sub-disciplines) that are of importance to biomedical sciences.</p> <ul style="list-style-type: none"> • has command of advanced research techniques, laboratory procedures and (statistical) methodology necessary for the specialization.
<p>Dublin descriptor 2: Application of knowledge</p> <p>The graduate should be experienced in carrying out research, in applying techniques specific to the subject area and in applying scientific knowledge to problems raised in society.</p>
<p>The graduate:</p> <ul style="list-style-type: none"> • is able to design experiments in the different fields associated with Biomedical Sciences notably within the field of his/her specialization and analyze their results. • has knowledge about the methodology used within research of the field of his/her discipline and can apply independently these methods in research. • is able to apply his/her scientific knowledge to social questions. • can think multidisciplinary and has insight in the relevant (sub)disciplines that are important to his/ her specialization. • is able to reflect on the ethical aspects of research or its uses, and include these deliberations in the decision-making process. • adopts an attitude towards the correct and unbiased use and presentation of data.
<p>Dublin descriptor 3: Critical judgment</p> <p>The graduate should be able to independently and critically judge information.</p>
<p>The graduate:</p> <ul style="list-style-type: none"> • is able to independently acquire information in the field of his/ her specialization, and to analyze and critically evaluate such information. • is able to select and order information, to distinguish essentials from trivialities, and to recognize connections. • is able to independently and critically analyze research in the field of his/ her specialization, both in relation to its design, planning and execution, and to the results obtained. • has the ability to evaluate his/her own performance, both introspectively and in discussion with others.
<p>Dublin descriptor 4: Communication</p> <p>The graduate should be able to transfer knowledge and skills related to his/her subject area to other persons and to adequately reply to questions and problems posed within society.</p>
<p>The graduate:</p> <ul style="list-style-type: none"> • can report orally on research results in English with support of modern presentation techniques. • can report in written form on research results on the level of peer-reviewed academic journals. • can make essential contributions to scientific discussions about plans, results and consequences of research. • can collaborate with researchers from other disciplines.
<p>Dublin descriptor 5: Learning skills</p> <p>The graduate should develop learning skills that enable him/her further self-education and development within the subject area.</p>
<p>The graduate:</p> <ul style="list-style-type: none"> • is able to understand and summarize scientific literature within the field of his/ her specialization. • is able to draw up a research plan, giving details of experimental design, execution and analysis. • is familiar with general scientific journals such as Nature and Science, and with journals in the area of his/ her specialization. • is familiar with computer software that is relevant to the field. • has been able to influence his/her personal learning process by the choice of courses.

Since the master consists of different (combinations of) specializations, the profiles of students graduating from the programme are as follows:

Immunology:

The Master's graduate with a specialization in Immunology has a broad understanding of immunological processes, ranging from the molecular and cellular interactions between host and pathogen to an integrative knowledge of the role of the immune system in various

pathologies, such as cancer, infectious diseases and autoimmunity. The Master's graduate has specialized in one of the subjects within the field of immunology. He/she possesses knowledge of current theory and the key research questions in the field of immunology and has an understanding of the scientific and social relevance of this subject area.

Infectious diseases:

The Master's graduate with a specialization in Infectious diseases has a broad understanding of the biology of pathogenic organisms and the interaction between pathogens and their hosts. The Master's graduate has the ability to conduct scientific research in the field of medical microbiology and to critically assess the results of microbial research. The Master's graduate has specialized in one of the subjects within the field of medical microbiology. He/she possesses knowledge of current theory and the key research questions in this field and has an understanding of the scientific and social relevance of this subject area.

Neurobiology:

The Master's graduate with a specialization in Neurobiology has knowledge, insight and understanding of the state of the art in terms of developing theories and insight into the most important current research issues in the neurosciences. The Master's graduate has the ability to conduct scientific research in the field of neurobiological research and to critically assess the results. The Master's graduate has specialized in one of the subjects within the field of neurobiology. He/she possesses knowledge of the significance of neurobiology within the context of brain research and some of its clinical implications.

International public health:

The Master's graduate with a specialization in International public health has a broad understanding of current and future challenges in international public health, their main causes, and applied and potential interventions. The Master's graduate has specialized knowledge of relevant concepts from various disciplines, including epidemiology, policy science, anthropology, management studies, biomedical sciences and health sciences. The Master's graduate has the ability to conduct scientific research in the field of international public health and to critically assess the results of international public health research. The Master's graduate has specialized in one of the subjects within the field of international public health. He/she possesses knowledge of current theory and the key research questions in this field and has an understanding of the scientific and social relevance of this subject area.

Communication specialization:

Biomedical science is increasingly becoming an interdisciplinary research field in which biomedical scientists can no longer function effectively in isolation. Rather, they benefit from interaction with other scientists (such as those in the fields of molecular biology, neurobiology and immunobiology) and societal actors (such as doctors, patients and policymakers). Communication about science takes place between academic peers and between scientists and the general public. This makes the Communication specialization a complex and dynamic field of research and practice, for example on patient participation in health research, the use and effects of media metaphors and hype, and public understanding of emergent technologies. The Master's graduate with this specialization has a theoretical understanding of the complex problems that arise during such communication processes, and has developed the necessary skills to act professionally at this interface to enhance communication and the outcomes of communication between scientific actors and society.

Science in Society:

The Master's graduate with a specialization Science in Society combines an academic approach with the skills and competences that will allow him or her to perform scientific research at the interface of the biomedical sciences and society. The specialization aims to develop strategies that contribute to an understanding of complex societal problems and strategies to solve complex societal problems through interdisciplinary research. In addition, the

programme analyses the social, economic and ethical aspects of new developments in the biomedical sciences, so as to assess their implications for society. Master's graduates have the necessary skills to collaborate and communicate with researchers from various scientific disciplines (including but not limited to those in the life sciences) and societal actors, and the ability to use these academic insights.

Education specialization:

The Master's graduate with a specialization in Education (CROHO number 68502, accreditation date 1 January 2010) obtains a certificate that qualifies the graduate to teach Biology in secondary schools (this is a 'grade one' certificate, i.e. it qualifies the graduate to teach pupils who will sit public exams in the subject).

3. Further admission requirements

Article 3.1 Admission requirements

1. Admission to the Master's programme is possible for an individual who can demonstrate that he/she has the following knowledge and skills at the Bachelor's degree level, obtained at an institution of academic higher education:

a. knowledge

A minimum of 24EC in molecular biology and a minimum of 24EC in human biology, including at least:

- Cell biology
- Biochemistry
- Genetics
- Immunology
- Microbiology
- Statistics

And preferably

- (Human) anatomy and physiology
- Histology and pathology

b. research laboratory skills:

- Practical laboratory techniques gained in courses
- Preferably a bachelor research internship of ≥ 12 EC in a research laboratory in a relevant field (molecular and/or human biology). The internship should be performed at a research department within a university, academic medical center or acknowledged research institute.

c. grades:

Holding a Bachelor's degree in Biomedical Sciences from a Dutch university or a Bachelor's degree in Gezondheid en Leven, major Biomedisch, from VU University Amsterdam:

- Direct admission: final grade bachelor research internship/thesis in a relevant field (molecular biology or human biology) is at least 7.5 and a bachelor grade average of at least 7.0 (excluding the internship), or the other way round.
- Intake procedure: final grade bachelor research internship/thesis in a relevant field (molecular biology or human biology) is at least 7.0

Holding another Bachelor's degree from a university, an international Bachelor's degree in a relevant field or a Bachelor's degree from an institute of higher education (HBO/HLO) in the Netherlands:

- Intake procedure: final grade bachelor research internship/thesis in a relevant field (molecular biology or human biology) is at least 7.5 and a bachelor grade average of at least 7.0 (excluding the internship).
- For bachelor's degrees from an institute of higher education (HBO/HLO): the average is calculated on a program of 240EC (4 years of study; including the propedeuse/first-year diploma)

d. specialization specific requirements:

- International Public Health: at least a course in Epidemiology/SPSS
- Education: at least 30 EC in biological courses, including at least courses in Evolution, Ecology, Biodiversity, Plant physiology and Field work

2. The Admissions Board will investigate whether the interested person meets the admission requirements.
3. In addition to the requirements referred to in the first paragraph, the Board will also assess requests for admission in terms of the following criteria:
 - o competence to function at academic MSc level
 - o motivation
 - o assessment based on a scientific article
4. Any individual who has obtained a Bachelor's degree in academic higher education on one of the following degree programmes meets the requirements referred to in paragraph 1a and 1b :
 - a. Bachelor's degree in Biomedical Sciences from a Dutch university
 - b. Bachelor's degree in Gezondheid en Leven, major Biomedische wetenschappen, at the VU University Amsterdam
5. When the programme commences, the candidate must have fully completed the Bachelor's programme or pre-Master's programme allowing admission to this Master's programme.

Article 3.2 Pre-Master's programme

1. Students with a Bachelor's degree in a field that corresponds to a sufficient extent with the subject area covered by the Master's programme can request admission to the pre-Master's programme, to be assessed by the Admissions Board.
2. The pre-Master's programme comprises 6-30 EC and is made up of units of the Bachelor's programme Biomedische Wetenschappen or other Bachelor's programmes of the Faculty of Earth and Life Sciences at the VU, to be decided by the Admission Board.
3. The individual who has successfully completed their specific pre-Master's programme meets the requirements referred to in paragraph 1a and 1b, and will be either directly admitted or invited for an intake procedure.

Article 3.3 Limited programme capacity

Not applicable

Article 3.4 Final deadline for registration

A candidate must submit a request to be admitted to the programme through Studielink before 1 May in the case of Dutch students, before 1 April in the case of EU students and before 1 February in the case of non-EU students. Under exceptional circumstances, the Examinations Board may consider a request submitted after this closing date.

Article 3.5 English language requirement for English-language Master's programmes

1. The proficiency requirement in English as the language of instruction can be met by the successful completion of one of the following examinations or an equivalent:
 - IELTS: 6.5
 - TOEFL paper based test: 580
 - TOEFL computer based test: 237
 - TOEFL internet based test: 92-93
 - Cambridge Advanced English (CAE): A, B or C.
 - Cambridge Proficiency English (CPE): A, B or C.
2. Exemption is granted from the examination in English referred to in the first paragraph to students who, within two years of the start of the programme:
 - met the requirements of the VU test in English language proficiency TOEFL ITP, with at least the scores specified in paragraph 1, or
 - had previous education in secondary or tertiary education in an English-speaking country as listed on the VU website, or
 - have an English-language 'international baccalaureate' diploma, or
 - have an English-language diploma of a Bachelor or Master degree programme which has been accredited by the NVAO in the Netherlands.

Article 3.6 Free curriculum

1. Subject to certain conditions, the student has the option of compiling a curriculum of his/her own choice which deviates from the curricula prescribed by the programme.
2. The concrete details of such a curriculum must be approved beforehand by the most appropriate Examinations Board.
3. The free curriculum is put together by the student from the units of study offered by Vrije Universiteit Amsterdam or another institution of higher education and must at least have the size, breadth and depth of a regular Master's programme.

4. The following conditions must at least have been met in order to be eligible for the Master's degree:
- at least 63 EC must be obtained from the regular curriculum, consisting of a research specialization (at least 57 EC, including the literature thesis) and all compulsory courses (6 EC),
 - the level of the programme must match the objectives and exit qualifications that apply for the programme for which the student is enrolled.

4. Curriculum structure

Article 4.1 Composition of programme

1. The programme contains the following specializations:

During their first year, students choose between Immunology, Infectious Diseases and Neurobiology. These specializations reflect the most important research groups in the domain of Biomedical Sciences at VU/VUmc. In their second year, students with a research profile choose one of the other research specializations or create their own program by including courses from other biomedical research-oriented masters. Within the I/C/S/E profile, students may specialize in the following disciplines: International Public Health, Science Communication, Specialization Science in Society and Education specialization.

First and/or second year Research specializations (54-60 EC)	Immunology Infectious Diseases Neurobiology
Second year I/C/S/E specializations	International Public Health (54 EC) Science Communication specialization (54 EC) Specialization Science in Society (54 EC) Education specialization (60 EC)

Article 4.2 Compulsory units of study

See study guide for form of tuition and type of assessment (<http://www.vu.nl/en/study-guide/>)

The compulsory units of study are:

- a. compulsory master courses

Course Code	Name of course component	Number of credits	Period or semester	Level
AM_1161B	Scientific Writing in English	3	Period 3+6	400
AM_470707	Ethics in Life Sciences	3	Period 3	400
AM_471135	Literature thesis Biomedical Sciences*	9	Academic year	600

* The literature thesis must be written within the scope of one or both research specialization(s).

- First year: Research specialization of 54-60 EC
- Second year: specialization of 54-60 EC, either in research or I/C/S/E.

Article 4.3 Specializations

See study guide for form of tuition and type of assessment (<http://www.vu.nl/en/study-guide/>)

- a. First and/or second year Research specializations:

The prescribed scope of the research specializations is 54-60 EC, including:

- research internship (30 EC)
- at least 3 courses from the specialization (18 EC)
- choice (6-12EC) from:
 - o literature thesis in the field of the specialization (9 EC);
 - o an extra optional course of the specialization (6 EC)
 - o an extension of the internship (3-6 EC)*

* The total EC for both internships together may not exceed 66EC.

Course code	Name of course component	Number of credits	Period or semester	Level
AM_BMED-I	MSc BMED spec. Immunology			
	Compulsory courses AM_BMED-I			
AM_470656	Advanced molecular immunology	6	1	500
AM_1031	Immunity and Disease	6	1	600
AM_470655	Clinical immunology	6	2	500
AM_471137	Internship Immunology	30	Ac. Year	600
	Optional courses AM_BMED-I			
AM_470657	Molecular infection Biology	6	2	600
AM_BMED-ID	MSc BMED spec. Infectious Diseases			
	Compulsory courses AM_BMED-ID			
AM_470127	Containment Strategies	6	1	500
AM_470052	Parasitology	6	2	400
AM_470657	Molecular infection Biology	6	2	600
AM_471138	Internship Infectious Diseases	30	Ac. Year	600
	Optional courses AM_BMED-ID			
AM_1021	Microbial Genomics	3	3	500
AM_470656	Advanced molecular immunology	6	1	500
AM_BMED-S-NB	Specialization Neurobiology			
	Compulsory courses AM_BMED-S-NB			
AM_1190	From Molecule to Mind	6	1	400
AM_1191	Data Analysis and Visualisation	6	1	400
AM_1178	Internship Neurobiology	30	Ac. Year	600
	Optional courses AM_BMED-S-NB	Compulsory to obtain at least 6 EC from these courses		
AM_1005	Clinical Neurosciences	6	2	400
AM_1006	Behavioral Genetics	6	2	400
AM_471158	Internship Biomedical Sciences- no spec.	30	Ac. Year	600

b. Second year I/C/S/E specializations:

The prescribed scope of the International Public Health, Communication and Science in Society specializations is 54 EC, including:

- o Internship (30 EC)
- o At least 4 courses from the specialization (24 EC)

The prescribed scope of the Education specialization is 60 EC. If the student is exempted for parts of the specialisation in Education, the exempted EC have to be compensated with other mastercourses of the programme.

Course code	Name of course component	Number of credits	Period or semester	Level
AM_BMED-IPH	MSc BMED spec. Internat. Public Health			
	Compulsory courses AM_BMED-IPH			
AM_470127	Containment Strategies	6	1	500
AM_470817	Research Methods for Need Assessments	6	1	400
AM_470819	Policy, Management and Organisation in IPH	6	2	500
AM_471139	Internship International Public Health	30	Ac. Year	600
	Optional Courses AM_BMED-IPH	Compulsory to obtain at least 6 EC from these courses		
AM_470588	Disability and development	6	2	500
AM_470818	Health, Globalisation and Human Rights	6	2	500
AM_470820	International Analyses of Health Care	6	3	500

AM_BMED-CS	MSc BMED Communication Specialisation			
	Compulsory courses AM_BMED-CS			
AM_1182	Research methods for analyzing problems	6	1	400
AM_470587	Science and Communication	6	1	500
	Optional courses AM_BMED-CS	Compulsory to obtain at least 12 EC from these courses		
AM_1002	Science in Dialogue	6	2	500
AM_470572	Communication, Org. and Management	6	2	500
AM_470590	Science Museology	6	3	500
AM_471014	Science Journalism	6	2	500
	Choose one of these courses			
AM_1162	Research Internship Science Comm.	30	Ac. Year	600
AM_1163	Reflective Practice Int. SC. Comm.	30	Ac. Year	600
AM_BMED-SS	MSc BMED Specialization Science in Society			
	Compulsory courses AM_BMED-SS			
AM_1133	Internship Science in Society (BMED)	30	Ac. Year	600
AM_1182	Research methods for analyzing problems	6	1	400
AM_470571	Analysis of Governmental Policy	6	1	500
AM_470572	Communication, Org. and Management	6	2	500
	Optional Courses AM_BMED-SS	Compulsory to obtain at least 6 EC from these courses		
AM_1002	Science in Dialogue	6	2	500
AM_1179	Epidemiology	3	3	500
AM_1180	Clinical Development and Clinical Trials	3	3	500
AM_470584	Business management	6	2	500
AM_470588	Disability and development	6	2	500
AM_470589	Policy, Politics and Participation	6	2	500
AM_470818	Health, Globalisation and Human Rights	6	2	500
AM_BMED-ES	MSc BMED Education specialisation (Dutch)	OM1_LBI_15	Master Leraar VHO Biologie 2015	
Studiegids.vu.nl	Studiegids.vu.nl	60	Ac. Year	400

Article 4.4 Electives

The student can take the electives mentioned under Art. 4.3.

If the student wishes to take a different course than the units of study listed, advance permission must be obtained in writing from the Examinations Board.

Article 4.5 Sequence of examinations

- Students may participate in the compulsory internship of each specialization (as listed under Art. 4.3) only if they **attended** the compulsory course(s) of the specialization **and** have acquired 18EC of the specialization specific courses.
- Students may participate in the second internship after passing the first internship.
- In order to start the course AM_1161 (Scientific Writing in English-AM_BMED) the students are required to already have found an internship which has been approved and administered.
- Students may participate in examinations for the unit below only if they have passed an examination for the unit mentioned:
 - Research Methods for Need Assessments (AM_470817) after passing a course in Epidemiology (preferably AB_470180 or AM_1179),

Article 4.6 Participation in practical exercise and tutorials

- In the case of a practical training, the student must attend at least 100 % of the practical sessions. Should the student attend less than 100 %, he/she must repeat the practical training, or the Examiner may have one or more supplementary assignments issued.
- In the case of tutorials with assignments, the student must attend at least 100 % of the tutorials. Should the student attend less than 100 %, he/she must repeat the study group, or the Examinations Board may have one or more supplementary assignments issued.

3. In exceptional circumstances, the Examinations Board may, at the request of the student, permit an exemption from this requirement if, in the opinion of the Board, the assessment of the intended skills is also possible with a lesser percentage of participation, with or without the imposition of supplementary requirements.

Article 4.7 Maximum exemption

A maximum of 40EC of the curriculum can be accumulated through granted exemptions, based on previous results within other master's programmes within the Life Sciences.

- either a maximum 40 EC can be accumulated from a *completed* master programme with a duration of two years (120 EC)
- or a maximum of 20 EC can be accumulated from a *completed* master programme with a duration of one year (60 EC)

Article 4.8 Validity period for results

1. The validity period of (interim) examinations and exemptions from examinations is as laid down in article 4.8 of TER part A.
2. The validity period of practicals, work groups and corresponding assignments is limited to two academic years, if content is unchanged during that period.

Article 4.9 Degree

Students who have successfully completed their Master's final examination are awarded a Master of Science degree. The degree awarded is stated on the diploma.

5. Transitional and final provisions

Article 5.1 Amendments and periodic review

1. Any amendment to the Teaching and Examination Regulations will be adopted by the faculty board after taking advice, and if necessary approved by the Programme Committee concerned. A copy of the advice will be sent to the authorized representative advisory body.
2. An amendment to the Teaching and Examination Regulations requires the approval of the authorized representative advisory body if it concerns components not related to the subjects of Section 7.13, paragraph 2 sub a to g and v of the WHW and the requirements for admission to the Master's programme and insofar it doesn't concern the guidelines of the Executive Board.
3. An amendment to the Teaching and Examination Regulations can only pertain to an academic year that is already in progress if this does not demonstrably damage the interests of students.

Article 5.2 Transitional provisions

Notwithstanding the current Teaching and Examination Regulations, the following transitional provisions apply for students who started the programme under a previous set of Teaching and Examination Regulations:

1. Compulsory components that have been removed from the curriculum:
For students who started their program before academic year 2013-2014 AM_471017 History of Life Sciences is compulsory. For these students, the course can be replaced by AB_1004 Geschiedenis van de levenswetenschappen. For students who started their program in academic year 2013-2014 or later, this course is no longer part of the Master's curriculum.
2. Specialisations that have been removed from the curriculum:
 - a. Specialisation Cardiovascular Diseases: only applies to students who started their program in academic year 2013-2014 or earlier. 18EC in specialisation courses and the Internship (30-36) were compulsory. The specialisation programme consisted of the following components.

code	name	EC
	Compulsory	
M_CCLINBIO09	Clinical and Biophysical Aspects of Cardiovascular Diseases and Imaging	6
M_CPATHO09	Pathophysiology of Heart and Circulation	6
M_CREMODE09	Remodelling of the Circulatory System	6
M_CVASCFU09	Vascular Function and Metabolic Diseases	6
AM_471136	Internship Cardiovascular Diseases	30-36

Students who have already successfully completed (some of) these courses before 1 September 2015 can use it as part of their specialization Cardiovascular Diseases or as an elective course.

b. Specialisation Psychophysiology: only applies to students who started their program in academic year 2014-2015 or earlier. 18EC in specialisation courses and the Internship (30-36) were compulsory. The specialisation programme consisted of the following components.

code	name	EC
AM_1003	Advanced Human Neurophysiology	6
AM_470715	Functional Brain Imaging	6
AM_471140	Internship Psychophysiology	30-36
AM_470700	Neuroendocrinology	6
AM_470736	Psychophysiology	6

Students who have already successfully completed this course before 1 September 2016 can use it as part of their specialization Psychophysiology or as an elective course.

c. Specialisation Medical and behavioral genomics: only applies to students who started their program in academic year 2014-2015 or earlier. 18EC in specialisation courses and the Internship (30-36) were compulsory. The specialisation programme consisted of the following components.

code	name	EC
AM_471142	Internship Medical and Behavioral Genomics	30-36
AM_1008 or AM_470725	Genomic Data Analysis or Bioinformatics	6
AM_470729	Gene Hunting	6
AM_470733	Complex Trait Genetics	6
AM_1040 or AM_470734	Statistical Genetics for Gene Finding	5-6

Students who have already successfully completed this course before 1 September 2016 can use it as part of their specialization Medical and Behavioral Genomics or as an elective course.

3. Specialisation components that have been removed from the curriculum:
 - a. The following component was removed from the specialization Medical and behavioural genomics in academic year 2014-2015: AM_470729 Gene Hunting (6 EC). Students who have already successfully completed this course before 1 September 2014 can use it as part of their specialization Medical and behavioral genomics or as an elective course.
 - b. The following component was removed from the specialization Infectious Diseases in academic year 2016-2017: M_OVIRONC03 Viral Oncogenesis (3 EC). Students who have already successfully completed this course before 1 September 2016 can use it as part of their specialization Infectious diseases or as an elective course.
 - c. The following component was removed from the specialization Infectious Diseases in academic year 2017-2018: AM_470094 Health Geography (6 EC). Students who have already successfully completed this course before 1 September 2017 can use it as part of their specialization Infectious diseases or as an elective course.

4. Compulsory components of specialisations:

Specialization Immunology: for students who started their program before academic year 2017-2018, the compulsory and optional components are different:

Name of course component	Course code	Number of credits	Compulsory or optional
Advanced Molecular Immunology	AM_470656	6	Compulsory
Internship Immunology	AM_471137	30	Compulsory
Immunity and Disease	AM_1031	6	Optional
Clinical immunology	AM_470655	6	Optional
Molecular infection Biology	AM_470657	6	Optional

Specialization Infectious Diseases: for students who started their program before academic year 2017-2018, the compulsory and optional components are different:

Name of course component	Course code	Number of credits	Compulsory or optional
Advanced Molecular Immunology	AM_470656	6	Compulsory
Internship Infectious Diseases	AM_471138	30	Compulsory
Molecular infection Biology	AM_470657	6	Compulsory
Microbial Genomics	AM_1021	3	Optional
Parasitology	AM_470052	6	Optional
Health Geography	AM_470094	6	Optional
Containment Strategies	AM_470127	6	Optional
Viral Oncogenesis	M_OVIRON C03	3	Optional

5. Components that have been replaced:

In academic year, spec.	Former component	New component
2012-2013, spec. Immunology	M_OIMMU03 Immunity and Diseases (6EC)	AM_1031 Immunity and Disease (6EC)
2012-2013, spec. Medical and behavioral genomics	AM_470725 Bioinformatics (6 EC)	AM_1008 Genomic Data Analysis (6 EC)
2013-2014, spec. Medical and behavioral genomics	AM_470734 Statistical Genetics for Gene Finding (5EC)	AM_1040 Statistical Genetics for Gene Finding (6EC)
2015-2016, spec. Infectious Diseases	AM_1055 Parasitology (6EC)	AM_470052 Parasitology (6EC)
2015-2016, compulsory courses	AM_471023 Scientific Writing in English (3EC)	AM_1161A/B, Scientific Writing in English (BMED) (3EC) or comparable courses
2015-2016, spec. Communication and Science in Society	AM_470582 Qualitative and Quantitative Research Methods (6EC)	AM_1182 Research methods for analyzing complex problems
2015-2016, spec. Communication	AM_471145 Internship Communication Specialization (30EC)	AM_1162 Research Internship Science Communication or AM_1163 Reflective Practice Internship Science Communication (30EC)
2015-2016, spec. Science in Society	AM_471144 Internship Societal Specialization (30EC)	AM_1133 Internship Science in Society (BMED)
2015-2016, spec. Science in Society	AM_470585 Clinical Development and Clinical Trails (6EC)	AM_1179 Epidemiology (3EC) and AM_1180 Clinical Dev. and Clinical Trails (3EC)

From the academic year of change, students obtain the new courses, unless they passed the former ones.

6. Specialization that has been changed in components:

For students who started their program in academic year 2015-2016, the courses below are part of the specialization Neurobiology.

Name of course component	Course code	Number of credits	Compulsory or optional
Advanced Molecular Immunology	AM_470656	6	Compulsory
System Neurosciences	AM_470712	6	Compulsory
Internship Neurobiology	AM_1178	30	Compulsory
Methods in behavioral neuroscience	AM_470728	6	Optional
Live Cell Imaging	AM_470726	6	Optional
Developmental Neurobiology	AM_470713	6	Optional
Neuronal networks in vivo	AM_1001	6	Optional

Students that started in academic year 2015-2016 and who successfully complete this course before 1 September 2017 can use it as part of their specialization Neurobiology or as an elective course.

For students who started their program in academic year 2016-2017, the specialization Neurobiology consists of the courses as mentioned in Art. 4.3.a.

7. Total of 120 EC
The final examination program should always total at least 120 EC.

Article 5.3 Publication

1. The faculty board will ensure the appropriate publication of these Regulations and any amendments to them.
2. The Teaching and Examination Regulations will be posted on VU-net and deemed to be included in the course catalogue.

Article 5.4 Effective date

These Regulations enter into force with effect from 1 September 2017.

Advice from Programme Committee, on 20 April 2017

Approved by authorized representative advisory body, on 6 July 2017

Adopted by the Faculty Board, on 21 July 2017