Teaching and Examination Regulations

Master's programme Biomedical Sciences
Faculty of Science

Academic year 2018-2019

B1: Programme specific section - general provisions
B2: Programme specific section - content of programme

Index

Section B1: Programme specific – general provisions

6. General programme information and characteristics

Article 6.1 Study programme information

1. The programme M Biomedical Sciences, CROHO number 66990, is offered on a full-time basis.	Advice OLC; approval FGV (7.13 i)
1a The language of instruction is English	Advice OLC; approval FGV (9.38 b)

2. 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
AM_1224	Single Cell Technologies in Life Science	3
AM_1216	Statistics in Neurosciences	3
AM_1215	From Molecule to Mind	9

Article 6.2 Teaching formats used and modes of assessment

1. The programme uses the teaching formats as specified in the Study Guide.	Advice OLC; approval FGV (7.13 x)
2. The modes of assessment used per educational component are specified in the Study Guide.	Advice OLC; approval FGV (7.13 l)

Article 6.3 Academic student counselling

1. The programme offers the following counselling in addition to the student counselling mentioned in Section A: a. Master's coordinator, for study planning b. Tutor	Advice OLC; approval FGV (7.13 u)

7. Further admission requirements

Article 7.1 Intake date(s)

1. The programme starts on September 1. 2. Limited programme capacity: not applicable	Advice OLC; approval FGV (9.38 b)

Article 7.2 Admission requirements

1. Admission to the Master's programme is possible for an applicant who has obtained a Bachelor's degree obtained at an institution of academic higher education, which demonstrates the following knowledge, understanding and skills: a. knowledge and understanding 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 ≥12EC 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: <u>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:</u> • 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 <u>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:</u> • 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	Partly legal provison & ordinance CvB, see appendix 3. Admission requirements excepted from participation in WHW
2. The Admissions Board will investigate whether the applicant meets the admission requirements.	Legal provision

3. In addition to the requirements referred to in the first paragraph, the Admissions Board may also assess requests for admission in terms of the following criteria: a. talent and motivation; b. academic attitude and critical thinking	Partly legal provison & ordinance CvB, see appendix 3. Admission requirements excepted from participation in WHW
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	

Article 7.3 English language requirement for English-language Master's programmes

1. The proficiency requirement in English as the language of instruction can be met if no longer than two years before the start of the programme, the applicant has successfully completed one of the following examinations with at least the scores indicated: - IELTS: 6.5 - TOEFL paper based test: 580 - TOEFL internet based test: 92 - Cambridge Advanced English: A, B or C. 2. Exemption is granted from the examination in English referred to in the first paragraph of this article to: a. students who completed an English-taught secondary or higher education degree in Canada, the United States, the United Kingdom, Ireland, New Zealand or Australia; b. those who have earned a bachelor's or master's degree in an English-taught programme accredited by NVAO in the Netherlands; c. those who have earned a Bachelor's or Master's degree in an accredited English-taught programme in another member state of the European Union; d. and otherwise, if the admission is granted by the Admission Board of the programme concerned.	Landelijke gedragscode Internationale studenten

Article 7.4 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.	advies OLC; instemming FGV (9.38 b)
2. The pre-Master's programme comprises 6-30 EC and is made up of units of the Bachelor's programme Biomedical Sciences or other Bachelor's programmes of the Faculty of Earth and Life Sciences at the VU, to be decided by the Admission Board.	advies OLC; instemming FGV (9.38 b)
3. A successfully completed pre-Master's programme serves as proof of meeting the requirements referred to in paragraph 1a and 1b, and will be either directly admitted or invited for an intake procedure for admission to the specified Master's programme in the subsequent academic year.	advies OLC; instemming FGV (9.38 b)

8. Interim examinations and results

Article 8.1 Sequence of interim examinations

1. a. Students may participate in the compulsory internship of each specialization (as listed in part B2) only if they attended the compulsory course(s) of the specialization and have acquired 18EC of the specialization specific courses. b. Students may participate in the second internship after passing the first internship. c. Students may participate in interim examinations of the component below only if they have passed the examination for the components mentioned hereinafter: Research Methods for Need Assessments (AM_470817) after passing a course in Epidemiology (preferably AB_470180 or AM_1179)	Advice OLC; approval FGV (7.13 h, s & t)

Article 8.2 Validity period for results

1. A. The validity period of the interim examinations and exemptions from interim examinations below, is as laid down in Article 3.8 of TER Section A B. The validity period of partial examinations (practicals, work groups and corresponding assignments) is limited to two academic years, if content is unchanged during that period.	Advice OLC; approval FGV (7.13 k)
2. A student may request the Examination Board to extend the validity of an exam. If the exam shows that a student's knowledge is insufficient or outdated, or if the student's skills and insights evaluated in the exam are demonstrably outdated, the Examination Board may impose a supplementary examination, impose a replacement examination or refuse to extend the period of validity.	Legal provision
3. In situations where a limited period of validity applies, the period of validity of examinations may be extended in the event of extenuating circumstances as stipulated in WHW Article 7.51, paragraph 2, with at least the period of allocated financial assistance specified in WHW Article 7.15, paragraph 1.	Legal provision

Art. 8.3. Degree

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.

Section B2: Programme specific – content of programme

9. Programme objectives, specializations and exit qualifications

Article 9.1 Workload

1. The programme has a workload of 120 EC	Advice OLC; (7.13 a)

Article 9.2 Specializations

The programme has the following specializations: • Immunology • Infectious Diseases • Neurobiology • International Public Health • Science Communication specialization • Specialization Science in Society • Education specialization	Advice OLC; (7.13 a)

Article 9.3 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).	Advice OLC; (7.13 a)

Article 9.4 Exit qualifications

1. At all events, a graduate of the study programme will have:	Approval OLC (7.13 c)
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 disciplines (and sub-disciplines) that are of importance to biomedical sciences.	

- has command of advanced research techniques, laboratory procedures and (statistical) methodology necessary for the specialization.

Dublin descriptor 2: Application of knowledge
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.

The graduate:

- 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.

Dublin descriptor 3: Critical judgment
The graduate should be able to independently and critically judge information.

The graduate:

- 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.

Dublin descriptor 4: Communication
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.

The graduate:

- 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.

Dublin descriptor 5: Learning skills
The graduate should develop learning skills that enable him/her further self-education and development within the subject area.

The graduate:

- 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.

2. Without prejudice to the provisions of paragraph 1, a graduate of the following specializations will have the following knowledge and understanding in the field of specialization: • 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	Approval OLC (7.13 b)

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).

10. Curriculum structure

Article 10.1 Composition of the programme

1. The programme comprises at least a package of compulsory components and an individual Master's thesis or academic internship.	Ordinance CvB, see appendix 3
2. Educational components are categorized as specialized (400), research oriented (500) and highly specialized (600) level.	Ordinance CvB, see appendix 3

Article 10.2 Compulsory educational components

A detailed description per educational component can be found in the Study Guide.

The compulsory units of study are:

a. Compulsory master courses

Educational component	course code	nr of EC	level
Scientific Writing in English	AM_1161B	3	400
Ethics in Life Sciences	AM_470707	3	400
Literature thesis Biomedical Sciences*	AM_471135	9	600

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

b. First year: Research specialization of 54-60 EC

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	Educational component	Number of EC	Level
AM_BMED-I	**MSc BMED spec. Immunology**		
	Compulsory courses AM_BMED-I		
AM_470656	Advanced molecular immunology	6	500
AM_1031	Translational Immunology	6	600
AM_470655	Clinical immunology	6	500
AM_471137	Internship Immunology	30	600
	Optional courses AM_BMED-I		
AM_470657	Molecular infection Biology	6	600
AM_1224	Single Cell Technologies in Life Science	3	600
AM_BMED-ID	**MSc BMED spec. Infectious Diseases**		
	Compulsory courses AM_BMED-ID		
AM_470127	Containment Strategies	6	500
AM_470052	Parasitology	6	400
AM_470657	Molecular infection Biology	6	600
AM_471138	Internship Infectious Diseases	30	600
	Optional courses AM_BMED-ID		
AM_1021	Microbial Genomics	3	500
AM_470656	Advanced molecular immunology	6	500
AM_BMED-S-NB	**Specialization Neurobiology**		
	Compulsory courses AM_BMED-S-NB		
AM_1215	From Molecule to Mind	9	400
AM_1216	Statistics in Neurosciences	3	400
AM_1178	Internship Neurobiology	30	600
	Optional courses AM_BMED-S-NB		
AM_1005	Clinical Neurosciences	6	400
AM_1214	Genetics in Neuroscience	6	400
AM_471158	**Internship Biomedical Sciences- no spec.**	30	600

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

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	Educational component	Number of EC	Level
AM_BMED-IPH	**MSc BMED spec. Internat. Public Health**		
	Compulsory courses AM_BMED-IPH		
AM_470127	Containment Strategies	6	500
AM_470817	Research Methods for Need Assessments	6	400
AM_470819	Policy, Management and Organisation in IPH	6	500
AM_471139	Internship International Public Health	30	600
	Optional Courses AM_BMED-IPH (6 EC)		

	AM_470588	Disability and development	6	500		
	AM_470818	Health, Globalisation and Human Rights	6	500		
	AM_470820	International Analyses of Health Care	6	500		
	AM_BMED-CS	**MSc BMED Communication Specialisation**				
		Compulsory courses AM_BMED-CS				
	AM_1182	Research methods for analyzing problems	6	400		
	AM_470587	Science and Communication	6	500		
		Optional courses AM_BMED-CS (12 EC)				
	AM_1002	Science in Dialogue	6	500		
	AM_470572	Communication, Org. and Management	6	500		
	AM_470590	Science Museology	6	500		
	AM_471014	Science Journalism	6	500		
		Choose one of these courses				
	AM_1162	Research Internship Science Comm.	30	600		
	AM_1163	Reflective Practice Int. SC. Comm.	30	600		
	AM_BMED-SS	**MSc BMED Specialization Science in Society**				
		Compulsory courses AM_BMED-SS				
	AM_1133	Internship Science in Society (BMED)	30	600		
	AM_1182	Research methods for analyzing problems	6	400		
	AM_470571	Analysis of Governmental Policy	6	500		
	AM_470572	Communication, Org. and Management	6	500		
		Optional Courses AM_BMED-SS (6 EC)				
	AM_1002	Science in Dialogue	6	500		
	AM_1179	Epidemiology	3	500		
	AM_1180	Clinical Development and Clinical Trials	3	500		
	AM_470584	Business management	6	500		
	AM_470588	Disability and development	6	500		
	AM_470589	Policy, Politics and Participation	6	500		
	AM_470818	Health, Globalisation and Human Rights	6	500		
	AM_BMED-ES	**MSc BMED Education specialisation (Dutch)**				
	OM1_LBI_15	**Master Leraar VHO Biologie 2015**	60	400		

Article 10.3 Elective educational components

1. The student can take one or more of the following electives without prior consent from the Examination Board:

Advice OLC; (7.13 a)

Course code	Name of educational component	nr of EC	level
AM_470656	Advanced molecular immunology	6	500
AM_1031	Translational Immunology	6	600
AM_470655	Clinical immunology	6	500
AM_470657	Molecular infection Biology	6	600
AM_1224	Single Cell Technologies in Life Science	3	600
AM_470127	Containment Strategies	6	500
AM_470052	Parasitology	6	400
AM_1021	Microbial Genomics	3	500
AM_470817	Research Methods for Need Assessments	6	400
AM_470819	Policy, Management and Organisation in IPH	6	500
AM_470588	Disability and development	6	500
AM_470818	Health, Globalisation and Human Rights	6	500
AM_470820	International Analyses of Health Care	6	500
AM_1182	Research methods for analyzing problems	6	400

AM_470587	Science and Communication	6	500	
AM_1002	Science in Dialogue	6	500	
AM_470572	Communication, Org. and Management	6	500	
AM_470590	Science Museology	6	500	
AM_471014	Science Journalism	6	500	
AM_470571	Analysis of Governmental Policy	6	500	
AM_1179	Epidemiology	3	500	
AM_1180	Clinical Development and Clinical Trials	3	500	
AM_470584	Business management	6	500	
AM_470589	Policy, Politics and Participation	6	500	
2. If the student wishes to take a different educational component than listed, advance permission must be obtained in writing from the Examinations Board.				Advice OLC; (7.13 a)

Article 10.4 Practical exercise

The following components can be considered as practical exercises:				Approval OLC (7.13 d)
Course code	Name of educational component	nr of EC	level	
AM_471137	Internship Immunology	30	600	
AM_471138	Internship Infectious Diseases	30	600	
AM_1178	Internship Neurobiology	30	600	
AM_471158	Internship Biomedical Sciences- no spec.	30	600	
AM_471139	Internship International Public Health	30	600	
AM_1162	Research Internship Science Comm.	30	600	
AM_1163	Reflective Practice Int. SC. Comm.	30	600	
AM_1133	Internship Science in Society (BMED)	30	600	

Article 10.5 Participation in practical exercise

In the case of a practical training, the student must attend 100 % of the practical sessions. Should the student attend less than 100 %, he/she must repeat the practical training, or the Examinations Board may have one or more supplementary assignments issued.	Approval OLC (7.13 d)

11. Evaluation and transitional provisions

Article 11.1 Evaluation of the education

The education provided in this programme is evaluated in accordance with the evaluation plan. The faculty evaluation plan offers the framework.	Approval OLC (7.13 a1)

Article 11.2 Transitional provisions

By way of departure from the Teaching and Examination Regulations currently in force, 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	Advice OLC (7.13 a)

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

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

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_OVIRONC03	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	AM_1162 Research Internship Science

		Specialization (30EC)	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)
	2018-2019, spec. Neurobiology	AM_1190 From Molecule to Mind (6EC)	AM_1215 From Molecule to Mind (9 EC)
	2018-2019, spec. Neurobiology	AM_1191 Data Analysis and Visualisation (6EC)	AM_1216 Statistics in Neurosciences (3 EC)
	2018-2019, spec. Neurobiology	AM_1006 Behavioral Genetics (6EC)	AM_1214 Genetics in Neurosciences (6 EC)

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 above.

Advice and approval by the Programme Committee, on February 1, 2018.

Approved by the Faculty Joint Assembly, on June 26, 2018

Adopted by the board of the Faculty of Science on June 26, 2018

Appendix I

Overview of articles that must be included in the OER

Based on Section 7.13, paragraph 2, of the WHW and other Sections of the Act.

Section B1: Programme specific – general provisions

6. General programme information and characteristics	
Article 6.1 Study programme information	7.13 paragraph 2 sub i, r
Article 6.2 Teaching formats used and modes of assessment	7.13 paragraph 2 sub l, x
[option:] Article 6.3 Academic student counselling	7.13 paragraph 2 sub u
7. Further admission requirements	
Article 7.2 Admission requirements	7.30b paragraph 2
8. Interim examinations and results	
Article 8.1 Sequence of interim examinations	7.13 paragraph 2 sub h, s, t
[option 1:] Article 8.2 Validity period for results	7.13 paragraph 2 sub k
[option 2:] Article 8.2 Validity period for results	7.13 paragraph 2 sub k

Section B2: Programme specific – content of programme

9. Programme objectives, specializations and exit qualifications	
Article 9.1 Workload	7.13 paragraph 2 sub g
Article 9.2 Specializations	7.13 paragraph 2 sub a
Article 9.3 Programme objective	7.13 paragraph 2 sub a
Article 9.4 Exit qualifications	7.13 paragraph 2 sub b, c
10. Curriculum structure	
Article 10.1 Composition of the programme	7.13 paragraph 2 sub a
Article 10.2 Compulsory educational components	7.13 paragraph 2 sub a
[Optional] Article 10.3 Elective educational components	7.13 paragraph 2 sub a
[Optional] Article 10.4 Practical exercise	7.13 paragraph 2 sub d
Article 10.5 Participation in practical exercise	7.13 paragraph 2 sub d
11. Evaluation and transitional provisions	
Article 11.1 Evaluation of the education	7.13 paragraph 2 sub a1
Article 11.2 Transitional provisions	7.13 paragraph 2 sub a

Appendix II

Table of right of advice and right of approval by the OLC and FGV

(translation to English at a later stage)

Onderwerpen Onderwijs – en Examenregeling (OER) 7.13 paragraph 2 WHW	**FGV**		**OplC**	
	I	**A**	**I**	**A**
a. de inhoud van de opleiding en van de daaraan verbonden examens				
a1. de wijze waarop het onderwijs in de desbetreffende opleiding wordt geëvalueerd				
b. de inhoud van de afstudeerrichtingen binnen een opleiding				
c. de kwaliteiten op het gebied van kennis, inzicht en vaardigheden die een student zich bij beëindiging van de opleiding moet hebben verworven				
d. waar nodig, de inrichting van praktische oefeningen				
e. de studielast van de opleiding en van elk van de daarvan deel uitmakende onderwijseenheden				
f. de nadere regels, bedoeld in de Articleen 7.8b, zesde paragraph, en 7.9, vijfde paragraph *(BSA)*				
g. ten aanzien van welke masteropleidingen toepassing is gegeven aan Article 7.4a, achtste paragraph *(verhoogde studielast)*				
h. het aantal en de volgtijdelijkheid van de tentamens alsmede de momenten waarop deze afgelegd kunnen worden				
i. de voltijdse, deeltijdse of duale inrichting van de opleiding				
j. waar nodig, de volgorde waarin, de tijdvakken waarbinnen en het aantal malen per studiejaar dat de gelegenheid wordt geboden tot het afleggen van de tentamens en examens				
k. waar nodig, de geldigheidsduur van met goed gevolg afgelegde tentamens, behoudens de bevoegdheid van de examencommissie die geldigheidsduur te verlengen				
l. of de tentamens mondeling, schriftelijk of op een andere wijze worden afgelegd, behoudens de bevoegdheid van de examencommissie in bijzondere gevallen anders te bepalen				
m. de wijze waarop studenten met een handicap of chronische ziekte redelijkerwijs in de gelegenheid worden gesteld de tentamens af te leggen				
n. de openbaarheid van mondeling af te nemen tentamens, behoudens de bevoegdheid van de examencommissie in bijzondere gevallen anders te bepalen				
o. de termijn waarbinnen de uitslag van een tentamen bekend wordt gemaakt alsmede of en op welke wijze van deze termijn kan worden afgeweken				
p. de wijze waarop en de termijn gedurende welke degene die een schriftelijk tentamen heeft afgelegd, inzage verkrijgt in zijn beoordeelde werk				
q. de wijze waarop en de termijn gedurende welke kennis genomen kan worden van vragen en opdrachten, gesteld of gegeven in het kader van een schriftelijk afgenomen tentamen en van de normen aan de hand waarvan de beoordeling heeft plaatsgevonden				
r. de gronden waarop de examencommissie voor eerder met goed gevolg afgelegde tentamens of examens in het hoger onderwijs, dan wel voor buiten het hoger onderwijs opgedane kennis of vaardigheden, vrijstelling kan verlenen van het afleggen van een of meer tentamens				
s. waar nodig, dat het met goed gevolg afgelegd hebben van tentamens voorwaarde is voor de toelating tot het afleggen van andere tentamens				
t. waar nodig, de verplichting tot het deelnemen aan praktische oefeningen met het oog op de toelating tot het afleggen van het desbetreffende tentamen, behoudens de bevoegdheid van de examencommissie vrijstelling van die verplichting te verlenen, al dan niet onder oplegging van vervangende eisen				
u. de bewaking van studievoortgang en de individuele studiebegeleiding				
v. indien van toepassing: de wijze waarop de selectie van studenten voor een speciaal traject binnen een opleiding, bedoeld in Article 7.9b, plaatsvindt *(excellentietraject binnen een opleiding)*				
x. de feitelijke vormgeving van het onderwijs				
alle overige onderwerpen die in de OER zijn geregeld maar die niet als zodanig zijn genoemd in art. 7.13 WHW onder a t/m x.				

De lettering komt overeen met de lettering van Article 7.13 paragraph 2 WHW

Appendix III

Ordinances VU CvB and Binding Guidelines (richtlijn)

Section A, article:	Concerns:	CvB ordinance / guideline
2.1.1, 2.1.2	Year planning two semesters 8-8-4 (uniforme jaarkalender VU-UvA)	29-9-2008 (period 2009-2015) 22-05-2014 (periode 2016-2025)
2.1.3, 2.1.4	Educational components	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
3.1	Compulsory signing up	CvB ordinance 30-09-2010, prior consent USR.
3.4.1	Determination and publication of the results (1) Grading deadline exams 10 workdays (2) Theses 20 workdays	(1) Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017 ((2) Quality demand 11 from the VU assessment policy, CvB ordinance 15-05-2012
3.5.1	Two possibilities to take examinations per year	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
3.5.2	Retake: most recent grade is valid. A pass can be retaken	Taken from the UvA guidelines, as part of the harmonization, CvB ordinance 24-02-2014
3.5.4	Extra retake last year	Included in (prior) model OER 16-17 following a request from committee O&O and adopted by CvB op 27-10-2015
3.6	Grades	CvB ordinance 30-09-2010, with University council's consent. As a result of harmonization UvA, the guideline: 5.5 is a pass, has been added. CvB ordinance 24-02-2014.
Section B1, article:	**Concerns:**	**CvB ordinance / guideline**
7.2.1	Admission criteria; at least WO Bachelor's degree	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
7.2.3	Additional admission criteria; type of criteria	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
Section B1, article:	**Concerns:**	**CvB ordinance / guideline**
10.1	Composition programme	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
10.2	Categorization of components	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017