

# **EDUCATION AND EXAMINATION REGULATIONS**

of the master's degrees in

**Biomedical Sciences**

**Biosciences**

**Health Sciences**

**Science and Business**

**Neuroscience and Cognition**

at the Graduate School of Life Sciences, Utrecht University

2022 - 2023

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## **INTRODUCTION**

These Education and Examination Regulations (EER) contain the programme-specific rights and obligations of students, on the one hand, and Utrecht University, on the other. The general University Students' Charter contains the rights and duties that apply to all students. For the master's degree in Health Sciences a different Charter applies.

These regulations are duly adopted by the dean on May 25<sup>th</sup>, 2022, with consent from the Faculty Councils and the Educational Committee.

# SECTION 1 – GENERAL PROVISIONS

## 1.1 – Applicability of the Regulations

These regulations apply to the education, tests and the examination of the master's programmes in the Life Sciences, of the master's degrees in the, Biomedical Sciences, Biosciences<sup>1</sup>, Health Sciences, Neuroscience and Cognition, and Science and Business (hereinafter referred to as 'the master's programmes) and to all students who are registered for the master's degrees in the academic year 2022-2023 and to all candidates who request to be admitted to a master's programme of the GSLS.

The master's degrees are provided by the Utrecht Graduate School of Life Sciences within the Faculties of Medicine, Veterinary Medicine, and Science, hereinafter referred to as 'the School' and 'the Faculties'.

## 1.2 – Definition of terms

In these regulations, the terms below are defined as follows:

- a. the Act: the Dutch Higher Education and Research Act (*Wet op het hoger onderwijs en wetenschappelijk onderzoek*);
- b. student: anyone who is registered at the university to take courses and/or to sit interim examinations and the examinations of the master's degree;
- c. credit: unit expressed according to the European Credit Transfer System (ECTS), whereby one credit (European Credit, EC) is equal to 28 hours of study load;
- d. language code of conduct: the rules of conduct relating to academic programmes and examinations in languages other than Dutch, determined by the Executive Board based on Section 7(2)(c) of the Higher Education and Research Act (*Wet op het hoger onderwijs en wetenschappelijk onderzoek*);
- e. degree: the master's degree referred to in section 1.1 of these regulations. A master's degree can consist of several master's programmes.
- f. master's programme: a coherent whole of components of study, within a master's degree, as described in article 3.6 of these regulations;

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<sup>1</sup> The degree Biosciences replaces the degrees in Biological Sciences, Chemical Sciences and Pharmaceutical Sciences with effect from September 2018.

## SECTION 1 – GENERAL PROVISIONS

- g. study component: the entire teaching and assessment of a unit of study (e.g., a course or research project) of the study programme, included in the university course catalogue;
- h. test: interim examination as referred to in section 7.10 of the Act;
- i. examination: the final master's examination of the study programme that is passed if all obligations of the entire master's Degree Programme have been fulfilled;
- j. University Course Catalogue: register of courses provided by Utrecht university, under responsibility of the Executive board (College van bestuur).
- k. contact hours: contact hours are taken to mean:
  - hours spent in class where a lecturer is present, such as lectures and tutorials, student counselling, traineeship supervision, tests and examinations, as well as career support in so far as the degree programme schedules these for all students;
  - other structured hours scheduled by the degree programme and which are characterised by contact between the students themselves, either online or on location and/or contact with lecturers online or on location.
- l. Educational Facilities: the contract concluded by the education director (or another officer on behalf of the study programme) and the disabled student, which lays down the necessary and reasonable facilities to which the student is entitled;
- m. International Diploma Supplement: the appendix to the Master's degree certificate, which includes an explanation of the nature and contents of the study programme (partly in an international context);
- n. Dean: the deans of the faculties;
- o. Board of Studies: the directors of the School;
- p. Board of Admissions: the committee which is responsible for the admission of applicants to the master's degrees and master's programmes;
- q. programme committee: the members of the academic staff facilitating education in a master's programme and responsible for the master's programme;
- r. programme coordinator: the member of the programme committee who is the liaison between the programme committee and the student;
- s. Board of Examiners: the examiners for all master's programmes of the School;
- t. Study Guide: the study guide for all master's programmes within the School.
- u. Research project coordinator: the staff that coordinate the procedures of the research projects and the writing assignments on behalf of the School.

- v. Digital learning environment: all systems or applications which support the education and learning abilities.

The other terms have the meanings ascribed to them by the Act.

## SECTION 2 – ADMISSION

### 2.1 – Requirements for admission to a master's degree programme

1. The holder of a Dutch or foreign degree who demonstrates knowledge, insight and skills in the field of life sciences at the level of a university bachelor's<sup>2</sup> degree is eligible for admission to the master's degree.
2. The master's degrees include the following programmes:
  - a. Bio Inspired Innovation: the student must have knowledge in the field of life and/or natural sciences and have a strong interest in sustainable development, design and innovation;
  - b. Bioinformatics and Biocomplexity: the student must have knowledge of biology, biochemistry, maths/statistics and/or programming. The student must have an interest in the analysis of large biological datasets which can be produced by a large variety of biological and biomedical research techniques;
  - c. Biofabrication: the student must have knowledge and skills in biomedical techniques and/or technologies and a broad interest in approaches from technical innovation (e.g., biomaterials and bioreactors);
  - d. Biology of Disease: the student must have knowledge of the pathology and (patho)physiology of organs and organ systems;
  - e. Cancer, Stem Cells and Developmental Biology: the student must have knowledge of molecular biology, cell biology, metabolism and signal transduction;
  - f. Drug Innovation: the student must have knowledge of pharmacology, (patho)physiology, biochemistry, biotechnology and analytical and organic chemistry;
  - g. Environmental Biology: the student must have knowledge of ecological, physiological, or molecular aspects of plant biology, marine biology, microbiology and/or behavioural biology;
  - h. Epidemiology: the student must have knowledge of basic medical terminology, explicit interest in (applied) biomedical research and affinity with one of the domains

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<sup>2</sup> The postgraduate master's programme Health Sciences requires the level of a University Master's degree.

of specialisation and must also have a minimum international B-level for quantitative courses in their pre-education (mathematics, statistics, epidemiology);

- i. Epidemiology Postgraduate: the student must have knowledge of basic medical terminology, explicit interest in (applied) biomedical research and affinity with one of the domains of specialisation, and a minimum international B-level for quantitative courses in their pre-education (mathematics, statistics, epidemiology);
  - j. Health and Environment: the student must have knowledge of toxicology, epidemiology and immunology;
  - k. Infection and Immunity: the student must have knowledge of molecular cell biology, immunology and microbiology;
  - l. Medical Imaging: the student must have knowledge in the field of natural and/or physical sciences (e.g., mathematics, physics, computer science, or more applied technical sciences like biomedical engineering) and an interest in (bio)medical technology and science;
  - m. Molecular and Cellular Life Sciences; the student must have knowledge of structural and/or molecular biology and/or systems biology, the main life processes (such as development, metabolism, reproduction) and a broad interest in advances from genetics, theoretical biology and computer science;
  - n. Neuroscience and Cognition: the student must have knowledge of neuroscience and/or cognition;
  - o. Regenerative Medicine and Technology<sup>3</sup>: the student must have knowledge and skills in biomedical techniques and/or technologies and a broad interest in approaches from technical innovation (e.g., biomaterials and bioreactors);
  - p. Science and Business Management: the student must have knowledge in the field of life and/or natural sciences and have a strong interest in business management;
3. Students will be selected based on objective standards concerning:
- a. previous academic performance in a relevant subject area or areas;
  - b. relevant skills;
  - c. command of the language(s) used in the programme

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<sup>3</sup> The master's programme Regenerative Medicine and Technology is a collaboration with Eindhoven University of Technology.

## SECTION 2 – ADMISSION

- d. the following additional selection criteria with proven relevance for the opinion on the suitability of the candidate:
  - i. subject specific knowledge
  - ii. interest in and motivation for the master's programme

This information is used to consider whether the student concerned is in a position of being able to successfully complete the master's programme within the nominal time period.

4. The admission requirements have been formulated clearly and transparently and published via the UU-website, so that candidates are aware beforehand of the requirements they must meet to be admitted to the programme.

### 2.2 – English language

1. Registration is possible only after fulfilling the requirement of sufficient command of the English language.
2. Candidates have sufficient command of the English language if they:
  - hold a bachelor's degree from a Dutch university
  - hold a bachelor's degree from an English programme
  - are a native English speaker
  - hold a Dutch HBO diploma
3. If a candidate does not meet the requirements referred to in clause 2, this can be made up before the start of the study programme by sitting one of the following tests:
  - IELTS (International English Language Testing System). The minimum required IELTS score (overall band) must be: 6.5, with at least 6.0 for the 'writing', 'speaking', 'listening' and 'reading' components.
  - TOEFL (Test of English as a Foreign Language). The minimum required TOEFL score is 93 for the internet test and a minimum of 24 for reading, 22 for listening, 20 for speaking and 20 for writing;
  - Cambridge EFL (English as a Foreign Language) examinations, with one of the following certificates:
    - i. Cambridge English Advanced (CAE); minimum score: 176 total, 169 writing;
    - ii. Cambridge English Proficiency (CPE); minimum score: 180 total, 169 writing.

## 2.3 – Admission procedure

1. Admission to a master's degree and master's programme is bestowed by the Board of Admissions. Admission decisions are made by the Board of Admissions, after consulting the programme committee.
2. In order to determine eligibility for admission to a master's programme, the Board of Admissions will carefully consider and evaluate the level of knowledge, insight and skills of the applicant. The committee may ask experts within or outside the university to assess the applicant's knowledge, insight and skills in particular areas, in addition to reviewing written documents of qualifications gained.
3. In order to determine eligibility for admission to a master's programme, the Board of Admissions will check whether the applicant meets the requirements referred to in articles 2.1, clause 1 and 2, or will have fulfilled them by the deadline date. In its evaluation the committee will consider the competences mentioned in art 2.1, clause 3, as well as the applicant's command of the English language. Based on this, the Board of admission will assess whether the candidate is able to achieve the master's degree qualification within the prescribed period when demonstrating sufficient commitment.
4. Students can start with the master's programme once or twice a year (see article 3.5.3).
5. Applications for admission to a master's programme should be submitted to the Board of Admissions before 1 April (for master's programmes starting on 1 September) or before 1 September (for master's programmes starting on 1 February) for students holding a foreign degree. Later deadlines may apply to holders of Dutch degrees. Requests submitted after this closing date will not be considered. The decision not to consider the request will point out the possibility to appeal to the Examinations Appeals Board.
6. Contrary to the provisions of paragraph 5, in special cases the Board of Admissions may handle a request submitted after these closing dates.
7. The Board of Admissions decides within a period of 20 working days from the date of receipt of the complete file. For programmes with a fixed capacity, this is within a period of 30 business days after the deadline (see appendix 1). Admission will be granted on the condition that by the starting date of the master's programme, the applicant will have satisfied the knowledge and skills requirements referred to in 2.1, as evidenced by qualifications obtained.
8. The Board of Admission may decide to admit an applicant, who is preparing for the final examination of the bachelor's degree programme provided by Utrecht University, into a programme for two weeks at that applicant's request, provided that:
  - the students already received a conditional letter of acceptance

## SECTION 2 – ADMISSION

- the aforementioned examination only depends on the test results of those units which are still being assessed by the relevant examiner(s);
- there are grounds to expect that a pass will be obtained for the aforementioned examination

Once a pass is obtained for the aforementioned examination, the admission will become final. If the student does not pass the final examination for the bachelor's degree programme within two weeks, he will be excluded from further participation in the master's degree programme until the aforementioned examination has been passed.

9. The applicant will receive written notification that he has been admitted to the degree and to a particular master's programme. The possibility to appeal to the Examinations Appeals Board is pointed out in this notification.
10. The applicant will accept a notification of admission within ten working days of receipt. A notification of admission that has not been accepted within ten working days will expire.

### **2.4 – Conditional admission decision: Pre-Master**

1. If the outcome of the evaluation referred to in Article 2.3, paragraph 2, into the knowledge, insights and skills of the candidate is that the candidate does not yet meet the admission requirements referred to in article 2.1 but will meet them after having passed a pre-master course tailored to the master's degree programme, the candidate will be given a conditional admission decision. Only the master's programmes Bio Inspired Innovation, Drug Innovation, Environmental Biology and Science and Business Management provide pre-master courses.
2. This conditional admission decision will state that the candidate concerned will be admitted to the master's Programme if:
  - a. the pre-master's course with the courses described therein and the study load, expressed in credits, has been passed
  - b. within the period stated in the admission decision.
3. The candidate will receive written confirmation of the conditional admission decision, which will point out the possibility to appeal to the Examinations Appeals Board.
4. After the conditions referred to in paragraph 2 (a) and (b) have been met, the conditional admission decision will be converted into a definitive admission decision.
5. After the expiry of the period referred to in paragraph 2(b), the student may no longer participate, or participate again, in the pre-master's course of Utrecht University.

6. If insufficient progress is made in the pre-master's course or if performance is qualitatively or quantitatively unsatisfactory, the Board of Studies of the Graduate School can exclude the student from further participation in the pre-master.
7. The pre-master's course referred to in paragraph 1 is open only to candidates who:
  - hold the nationality of an EU/EER member state or Switzerland, or do not hold this nationality but do hold a residence permit that entitles them to statutory tuition fees, and
  - have completed their previous education in the Netherlands.
8. The Admissions Committee may deviate from the requirements referred to in paragraph 7 in special cases. In any case, special dispensation will be given to refugees with residence status and refugees with a W-card, who have applied for asylum and have not yet received a final decision on their application. Deviation from the requirements is not possible if the candidate requires assistance from Utrecht University in applying for a visa, where the university acts as a sponsor.

## **SECTION 3 – CONTENTS AND STRUCTURE OF THE STUDY PROGRAMMES**

### **3.1 – Aim of the master's degree**

1. The master's degrees aim to:
  - provide the acquisition of specialised knowledge, skills and insight in (parts of) the life sciences, and enable achievement of the exit qualifications referred to in the second clause below;
  - prepare the student for a career in for example research, regulation, management and/or communication in the life sciences.
2. The successful Life Sciences graduate:
  - Knowledge and insights
    - i. will be able, with the knowledge of at least one of the specialised subjects of Life Sciences, to make a substantial contribution to the development and/or application of scientific concepts and methods, in a research context;

## SECTION 3 – CONTENTS AND STRUCTURE OF THE STUDY PROGRAMMES

- ii. will be able to overview the important, recent developments within the Life Sciences and to point out the implications of these developments on the Life Sciences field and society;
  - iii. will be able to adequately use and interpret specialist literature in at least one of the subjects of Life Sciences.
- Apply knowledge and insights
  - i. will be able to translate a Life Sciences problem into a relevant research question or approach, suitable for research development, product development, education or society;
  - ii. will be able to design a suitable research plan to test the formulated research questions, according to methodological and scientific standards;
  - iii. will be able to independently perform research, with the required accuracy. Graduates are able to handle, analyse, interpret and evaluate the empirically derived data in a correct manner;
- Judgement
  - i. will be able to discuss the outcomes of empirical research and to link them with scientific theories;
  - ii. will be able to indicate the importance of research activities for solving a biomedical question or problem, if applicable from a social perspective;
  - iii. will be able to critically reflect on their own research work in Life Sciences, from a social perspective;
- Communication
  - i. will be able to comprehensibly report research results verbally and in writing, to specialised and non-specialised audiences in an international context;
  - ii. will function effectively in a multidisciplinary research team
- Learning skills
  - i. will have the skills to reflect on their own development and study career, and, if necessary, to motivate themselves and make any necessary adjustments;
  - ii. will have the skills to function independently and result-oriented in a competitive labour market;

- iii. will have the qualification to be eligible for a PhD position or a position in another sector of the labour market.
- iv. Or a position within a matching sector of the labour market.

3.2 – Attendance mode The master's degrees are full-time programmes. The master's degree Health Sciences is a full-time programme as well as a part-time programme.<sup>4</sup>

### 3.3 – Language of the programme

1. The master's programmes are taught in English. This is governed by the Utrecht University Language Code of Conduct.
2. Contrary to paragraph 1, a part of the communication profile (see article 3.6.6) can be offered in Dutch. The course *Loopbaanoriëntatie en professionalisering* is offered in both Dutch and English.

### 3.4 – Credit load

The credit load for the master's degrees Biomedical Sciences, Biosciences, Science and Business and Neuroscience and Cognition is 120 credits. The credit load for the master's degree in Health Sciences is 90 credits.

### 3.5 – Master's programmes and starting times

1. The School provides the following master's programmes:
  - Biofabrication prepares the student for a career in multidisciplinary research on the interface of biofabrication, 3D printing techniques, material sciences and clinical applications.
  - Bio Inspired Innovation prepares the student for a career in a R&D, design- or innovation related environment.
  - Biology of Disease prepares the student for a career in research in a clinical or biomedical setting to gain insight into mechanisms and processes of disease, with the opportunity to focus on cardiovascular topics.

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<sup>4</sup> The part-time programme of Epidemiology Postgraduate is offered as an online programme.

## SECTION 3 – CONTENTS AND STRUCTURE OF THE STUDY PROGRAMMES

- Cancer, Stem Cells and Developmental Biology prepares the student for a career in research in the field of developmental biology, molecular oncology, signal transduction, stem cell technology and molecular genetics.
- Drug Innovation prepares the student for a career in interdisciplinary research in the field of innovation and management of small molecule and bio molecular drugs or development of new approaches for evaluating the quality, efficacy, safety, and performance of the drug.
- Environmental Biology prepares the student for a career in molecular and/or ecological research on plants, plant communities, micro-organisms, animals and/or (marine) ecosystems.
- Epidemiology and Epidemiology Postgraduate prepares the student for a career in research in the field of quantitative analysis of the distribution of health and morbidity in populations (human or veterinary) and their determinants.
- Health and Environment prepares the student for a career in research in the field of fundamental and clinical immunology, prevention, diagnose and treatment of infectious diseases and immune deficiencies.
- Infection and Immunity prepares the student for a career in research in the field of fundamental and clinical immunology, prevention, diagnosis and treatment of infectious diseases and disorders of immunity.
- Medical Imaging prepares the student for a career in research in the field of medical imaging in the broadest sense, including the physics behind medical imaging acquisition, medical image analysis and applications in science, in the clinic and in industry.
- Molecular and Cellular Life Sciences prepares the student for a career in interdisciplinary research in the field of structural biology, molecular biology and systems biology.
- Neuroscience and Cognition prepares the student for a career in interdisciplinary research in the fields of physiology and pathophysiology of the nervous system and cognition in humans and experimental animals.
- One Health prepares the student for a career in multidisciplinary research on the interface of the health of humans, animals and environment with a clear focus on infectious diseases<sup>5</sup>.

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<sup>5</sup> The Master's programmes One Health and Toxicology and Environmental Health are not accepting new students from the academic year 2022-2023 and onward.

- Regenerative Medicine and Technology prepares the student for a career in multidisciplinary research on the interface of regenerative medicine, technology and clinical applications.
- Science and Business Management prepares the student for a career in a research-related business environment
- Toxicology and Environmental Health prepares the student for a career in research in the field of risk assessment of chemical, physical and biological agents on humans, animals and the environment<sup>5</sup>.

2. Students will be registered under only one master's degree. The master's degree is subject to the approval of the Board of Admissions. The master's degrees of the School start once or twice per year: always per September first and some also per the first of February. Below is an overview of the master's degree and master's programmes with the corresponding starting dates:

Master's programme	Master's degree	Starting date
Biofabrication	Biomedical Sciences	September
Bioinformatics and Biocomplexity	Biosciences <sup>6</sup>	September
Bio Inspired Innovation	Biosciences <sup>6</sup>	September
Biology of Disease	Biomedical sciences	September / February
Cancer, Stem Cells and Developmental Biology	Biomedical sciences	September
Drug Innovation	Biosciences <sup>6</sup>	September
Environmental Biology	Biosciences	September

<sup>6</sup> Students of the master degrees in Pharmaceutical sciences, Biological sciences and Chemical sciences will no longer be able to graduate under the concerning degree. They can continue their master's if they registered under the new master's degree: Biosciences.

## SECTION 3 – CONTENTS AND STRUCTURE OF THE STUDY PROGRAMMES

Epidemiology	Biomedical Sciences	September
Epidemiology Postgraduate	Health Sciences	September / February <sup>7</sup>
Health and Environment	Biomedical Sciences	September
Infection and Immunity	Biomedical Sciences	September
Medical Imaging	Biomedical Sciences	September
Molecular and Cellular Life Sciences	Biosciences <sup>6</sup>	September
Neuroscience and Cognition	Neurosciences	September
One Health	Biomedical Sciences	-
Regenerative Medicine and Technology	Biomedical Sciences	September
Science and Business Management	Science and Business	September / February
Toxicology and Environmental Health	Biomedical Sciences	-

### 3.6 – Composition of the master’s programmes

1. The master’s programmes consist of at least the following components:
  - theoretical components;
  - elective components;
  - a research project;

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<sup>7</sup> Only the part-time Epidemiology Postgraduate programme has a starting date in February.

- A profile<sup>8 9</sup>
  - a writing assignment<sup>10</sup>;
  - an introduction course, seminars in the field of life sciences and professional skills and workshops focussed on personal development (Life Sciences Academy).
2. The postgraduate master's degree Health Sciences consists of the following compulsory components:
- Theoretical components;
  - Research project.
3. Prior approval by the Board of Examiners is obligatory for each and every of the following components of the master's programme: the major research project, the business internship, the writing assignment, and – in specific cases, see article 3.6.4 – the elective component. The topic of the major research project, the business internship and the writing assignment has to be within the scope of the research focus of the master's programme.
4. Each student chooses a profile within their exam program. A profile is a coherent thematic set of study components, with a credit load of 33 credits. The School provides the following profiles:
- Applied Data Science
  - Bioinformatics
  - Communication
  - Complex Systems
  - Education
  - General Research
  - Life Sciences and Society
  - Management
  - Translational Life Sciences

The profiles are described in appendix 3. Which profiles can be chosen within a specific master's programme is described in appendix 2.

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<sup>8</sup> The profiles replaced the minor research project in 2021. A student does not have to follow a profile if the minor research project is obtained.

<sup>9</sup> The master's programmes Epidemiology and Science and Business Management have a different programme.

<sup>10</sup> Within Science and Business Management, this component will be a business internship.

## SECTION 3 – CONTENTS AND STRUCTURE OF THE STUDY PROGRAMMES

5. Subject to approval by the programme coordinator, the student will be required to select one or more elective components. Students may choose elective components from additional components of their master's programme and/or components of other master's programmes. The credit loads of the elective components of the specific master's programmes are given in appendix 2.

The programme coordinator may require that students fill the electives with courses supporting specific requirements for projects such as courses in Laboratory Animal Sciences, VMT (safe microbiological techniques), or Radiation. For participation of these courses, permission must be obtained from the School. Electives can also be used for the extension of some of the profiles (see clause 7) with 6, 9, or 12 credits. For this, and for a technical training, mini-project or with courses attended online, approval of the Board of Examiners is required<sup>11</sup>. The writing assignment and the major research project cannot be extended for additional credits.

6. If a student has a learning gap in a master's programme, they can be required by the programme coordinator to use all or part of the electives to fill the gap. It can be remedied with bachelor's courses (advanced level) or self-study, of which the content and nature will be determined by the programme coordinator before or during the master's programme. If the master's student successfully finishes a bachelor's course, the student can be awarded for maximally 80% of the bachelor credits in the master's programme, with a maximum of 6 credits in total for the whole master's degree.
7. Some master's programmes provide the opportunity to follow a track. A track is a coherent set of programme-specific components, with a credit load of at least 60 credits. The master's programmes that provide one or more tracks are given in appendix 2.
8. In the University Course Catalogue, the learning outcomes, content and type of courses of the components of the different programmes are described in more detail, stating the previous education required to pass the relevant component.

### **3.7 – Courses taken at a foreign university**

1. Courses provided by a foreign university are also optional components with the approval of the Board of Examiners. The Board of Examiners will decide whether these courses are at a sufficient academic level. The Board of Examiners will not give approval if it is of the opinion that a replication of content exists in relation to courses already completed by the student. In the event that courses are replicated in terms of their content, either wholly or in part, the Board of Examiners may limit the contribution of these courses to the examination through deduction of credits in proportion to the overlap.

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<sup>11</sup> Online courses from the Graduate School of Life Sciences are approved beforehand by the Board of Examiners.

2. The degree programme will publish on the student site the procedure for contributing courses taken abroad:
  - a. stating at what moment and in what manner students may apply for approval for courses taken abroad;
  - b. giving students the option of applying for approval at such time that they have received a decision from the Board of Examiners by the start of their exchange.
3. Conversion of credits achieved for courses taken abroad is as follows:
  - a. The credits will be taken over for courses provided by foreign universities within the European Union/European Economic Area that work with the European Credit Transfer System (ECTS) and which have been approved by the Board of Examiners with regards to their content and level. As an exception to the above, the Board of Examiners can decide to grant a different number of credits if the number of credits awarded abroad is not in line with the study workload.
  - b. The credits will be converted for courses provided by foreign universities outside the European Union/European Economic Area which do not work with ECTS and which have been approved by the Board of Examiners with regards to their content and level, in accordance with the university-wide conversion table. The Board of Examiners may deviate from this in exceptional cases if there are good reasons to do so.
4. Conversion of grades attained for courses taken abroad is as follows:
  - a. Foreign results are converted into the alphanumerical results Pass/Fail; in addition, the original results and assessment scale will be recorded in OSIRIS and printed on the International Diploma Supplement referred to in Article 6.4, which contains a reference to the Nuffic information about assessment at foreign universities.
  - b. The foreign university will determine where the cut-off score lies for a pass, and records in the transcript whether the student has passed.
  - c. The foreign results will not count towards the student's average final mark.
  - d. The Board of Examiners will determine whether and how foreign results will count towards determining whether the student has passed with distinction (cum laude).

### **3.8 – Area with negative travel advice**

1. Study components for which students need to travel abroad or to the Caribbean part of the kingdom for which the ministry of foreign affairs has given a red (no traveling) or an orange (necessary travels) travel advice for the period in which the study component will be

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followed, cannot be contributed into the study program. The same will apply if a negative travel advice to exit the country is given from The Netherlands by the ministry of foreign affairs.

2. On behalf of the dean, it is possible to deviate from the previous paragraph in exceptional circumstances.
3. In case of the travel advice changing to red or orange when the student is already present abroad or in the Caribbean part of the kingdom:
  - a. The Executive Board will determine whether it is responsible for the student to stay;
  - b. The Executive Board will take local risks and the impact of the commute home into consideration in taking this decision;
  - c. The Executive Board may advise the student to return back to the Netherlands;
4. The student who does not follow the advice to return cannot include the study component in the degree programme, unless the dean decides to make an exception.

### **3.9 – Components inside and outside UMCU/UU**

1. A condition for gaining the degree awarded after passing the master's examination of the study programme is that at least 60 credits of the study programme are gained in components provided by Utrecht University, UMC Utrecht and/or the Hubrecht institute. The exception is Health Sciences, which requires at least 56 credits.
2. Components (excluding the elective component) passed elsewhere during the study programme can only be incorporated in the student's examination programme with prior permission from the Board of Examiners. See the [Rules and Regulation of the Board of Examiners](#).
3. The major research project has to be conducted at Utrecht University, UMC Utrecht, the Hubrecht laboratory or the Princess Máxima Center for Pediatric Oncology. The major research project of Biofabrication can be conducted abroad provided that the profile (project) will be conducted in Utrecht.  
The research project of Epidemiology and Epidemiology Postgraduate can (partly) be conducted outside Utrecht University, but only in cooperation with, and under the responsibility of an examiner from with Utrecht University, the UMCU, the Prinses Máxima Centrum and/or the Hubrecht institute.
4. Research projects and business internships conducted outside of the Utrecht University, the UMCU, the Prinses Máxima Centrum and/or the Hubrecht institute require signing of an internship contract from Utrecht University by the student, the supervisor at the host institute and the research project coordinator.

5. Exemption or credit transfer can be granted for components passed at another institute of higher education prior to the start of the master's programme only based on article 5.13. Credit transfer can be granted for components passed at another institute of higher education during the master's programme only based on article 5.13.

### **3.10 – Honours Programme**

- The study programme has two Honours Programmes, which are both open to all students:
  - Utrecht Selective Life Sciences ExtraCurricular Track (U/Select)
  - Quantitative Biology & Computational Life Sciences (QBio)

#### **U/Select**

U/Select is a two-year extracurricular programme that consists of the following components:

- monthly meetings (master classes);
- writing of a research project proposal;
- a minor research project abroad;
- presentation of the research project during a mini symposium.

Each year, a committee will select several students for participation in the U/Select. Selection will be based on the following criteria:

- motivation of the student;
- extracurricular activities;
- past performance study results;
- recommendation of the programme coordinator or the research project supervisor.

The selection procedure will be published on the [School's website](#).

The Board of Studies may decide to terminate participation in U/Select when:

- a student has not shown active participation in the master classes of U/Select;
- a student has not earned a satisfactory mark for the research proposal;
- a student has not studied within 1,5 times the official time period;

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- the Board of Examiners has taken any decision that fraud/plagiarism was committed (as described in article 5.14).

### **QBio**

The Honours Programme QBio consists of a QBio introductory course, a journal club, a research project and a research proposal. Every year, a number of students are selected for participation in the Honours Programme by the coordinators. Criteria are:

- motivation of the student;
- recommendation of the supervisors of the current master's programme
- grades and relevant courses in the bachelor's programme;
- grades and direction for math education during high school.

Based on this, students are selected for the QBio introductory course. The second selection will take place after the course. The coordinators select up to 12 students each year who attend the entire programme. This selection is based on abovementioned criteria and:

- general performance during the QBio introductory course;
- competence to perform interdisciplinary quantitative biology research;
- discussions of papers.

The selection procedure will be published on the [QBio website](#).

- The applicant will receive a decision of admission or rejection for the Honours Programme, which will also inform the applicant of the opportunity to appeal to the Executive Board.

### **3.11 – Actual teaching structure**

1. The number of contact hours for the research projects and the writing assignment (scheduled contact hours) comes to an average of two hours (5% of study load) a week. For courses the number of contact hours varies from 8 up to 40 hours (20-100%) a week (based on a fulltime course)<sup>12</sup>.
2. Before the start of each course, the student has the following information:
  - a. learning objectives;

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<sup>12</sup> The study load for the part-time (online) programme of Epidemiology Postgraduate is approximately 14 hours per week.

- b. the timetables;
- c. the scheduling of the contact hours;
- d. when and where the course tests and supplementary tests take place.

## **SECTION 4 – EDUCATION**

### **4.1 – Study components**

All study components which can make up part of the study are published on the University Course Catalogue. Study components are only awarded (a multiple of) full or half credits.

### **4.2 – Required sequence of components**

1. The programme coordinator determines the order in which compulsory components of a master's programme must be completed.
2. Course-specific entry requirements are given in the University Course Catalogue.

### **4.3 – Registration for courses**

Participation in a course is possible only if the student has registered for it in good time and when one's place had been confirmed. The information about course registration is published in the University Course Catalogue.

### **4.4 – Attendance obligation and obligation to perform to the best of one's ability**

1. All students are expected to participate actively during each study component for which they are registered.
2. Besides the general requirement for students to participate actively in the study component, the additional requirements for each component are listed in the University Course Catalogue.
3. In the event of qualitatively or quantitatively inadequate participation, the coordinator may exclude students from further participation in the study component or from part of it.
4. Students who register for a course and are enrolled but cancel their registration after the cancellation deadline and/or do not follow the course will be enrolled last for any course they register for in the following period (see article 4.4.2). These students will receive the registration 'ND' in Osiris for the course they did not follow (see article 5.4.3).

### **4.5 – Evaluation of the quality of the education**

1. The Board of Studies is responsible for monitoring the quality of the education. To this end, the education director will ensure that an evaluation of the courses is made, as well as an evaluation at curriculum level. In this quality control of the courses the education director will draw on the advice and suggestions for improvement of the education committees on promoting and safeguarding the quality of the course.
2. The education within the master's degree will at least be evaluated in the following manner:
  - course evaluations;
  - evaluations of research projects and writing assignments;
  - evaluations at the level of the curriculum;
  - National Student Survey (NSS)
3. The students who have participated in the course will be informed within 6 weeks by the course coordinator about the results of the course evaluations and the changes made and measures taken in response to the course evaluation.

## SECTION 5 – TESTING

### 5.1 – General

1. During the study component, the student will be tested for the extent to which the student has sufficiently achieved the learning goals. The testing of the student will be concluded at the end of the study component.
2. The University Course Catalogue describes what the student must achieve in order to pass the course and the criteria on which the student is assessed.
3. The testing procedure is described in the Rules and Regulations of the Board of Examiners that is published on the School's website.

### 5.2 – Board of Examiners

1. The dean will set up a Board of Examiners for the Graduate School of Life Sciences and will put in place sufficient guarantees that this Board will work in an independent and expert manner.
2. The dean will appoint the chair and the members of the Board of Examiners for a period of three years based on their expertise in the field of the programme(s) in question or the field of examining whereby:
  - at least one member comes from outside the group of master's programmes concerned, and
  - at least one member is a lecturer on the group of master's programmes concerned. Re-appointment is possible. Before making this appointment, the dean will consult the members of the Board of Examiners concerned.
3. Persons holding a management position with financial responsibility or (partial) management responsibility for a programme of study may not be appointed as a member or chair of the Board of Examiners. This will in any event include: the dean, vice-dean; the director/head/manager of a department; a member of a departmental management/administrative team; a member/chair of the Board of Studies of the Graduate School or the Undergraduate School and the director of education.
4. Membership of the Board of Examiners will terminate upon expiry of the period of appointment. In addition, the dean will discharge the chair and the members from their duties at their request. The chair and the members will also be dismissed by the dean in the event that they no longer fulfil the requirements stated in paragraphs 2 or 3 of this article. In addition, the dean may dismiss the chair and the members in the event that they fail to perform their statutory duties inadequately.

5. The dean will make the composition of the Board of Examiners known to the students and teaching staff.

### 5.3 – Assessment: research project, internship, or writing assignment

1. A (theoretical) course is assessed by the examiner (a staff member of the Utrecht University or the University Medical Center Utrecht or the Hubrecht institute).
2. A business internship, writing assignment or research project is assessed by the examiner (a staff member of the Utrecht University or the University Medical Center Utrecht or the Hubrecht institute) and one or more other internal and/or external experts.
3. A major research project<sup>13</sup> has to be assessed within 12 months after the start of the project. A general research profile project or business internship have to be assessed within 9 months after the start of the profile/internship. On request of the student, the research coordinator can provide an exception on this rule in special cases.
4. A writing assignment has to be assessed within 3 months after the start of the assignment. On request of the student, the research coordinator can provide an exception on this rule in special cases.

### 5.4 – Marks

1. Marks are awarded on a scale of 1 to 10. A mark of 5.5 (not rounded off) or higher is satisfactory, and lower is unsatisfactory. The examiner determines the final grade expressed with one decimal figure, which will be rounded off mathematically. Marks will be rounded off as follows: If the second decimal is a 5 or higher, the first decimal will be rounded up. If the second decimal is a 4 or lower, the first decimal will be rounded down. This does **not** apply to grades between 5.45 and 5.50 and between 3.95 and 4.00: these will be round off to 5.4 and 3.9, respectively. In Osiris final grades between 5.0 and 5.4 will be rounded down to 5.0, grades from 5.5 to 5.9 will be rounded up to 6.0. Other grades will not be rounded off in Osiris. If the assessment is determined by a weighted average of partial grades, these partial grades will not be rounded off.
2. Partial marks of the research projects and business internships should each be satisfactory.
3. Alphanumeric results are awarded in the following cases
  - a student who is registered for a course and has not participated in any of the test modules will be given an ND (Niet Deelgenomen – Not Participated);

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<sup>13</sup> This applies to a Major research project of 51 EC, see Study guide.

## SECTION 5 – TESTING

- a student who is registered for a course and has not fulfilled the requirements for all test components, preventing the ability to calculate the final mark, or has not participated in all the test modules and has been granted a supplementary exam, will receive a AANV (AANVullende toets – additional assessment)
- a student who is registered for a course and has not participated in all the test modules or has not fulfilled all the requirements of the test modules, such as fraud, will be given an NVD (Niet VolDaan – Incomplete);
- if the student has complied with a module, but has not received a mark for it, he may be given a V (Voldoende – Satisfactory) as the result;
- if the student has not complied with a module and does not receive a mark for it, the student can be given an ONV (ONVoloende - Unsatisfactory) as the result;
- a student who has been granted exemption by the Board of Examiners will be given a VR (VRijstelling – Exemption);

### **5.5 – Making-up: additional or substitute test**

1. If students have fulfilled all the obligations to perform to the best of their ability during the course, and the final mark is at least a four (not rounded off), they will be given a single possibility to sit an additional or substitute test.
2. Satisfactory tests are not eligible for substitute testing or re-examination. Students are not allowed to follow a course for a second time if they have obtained a satisfactory end result.
3. In cases where the examiner has decided that for certain components a minimum mark has to be obtained and this obligation has not been fulfilled, students will be given a single possibility to sit an additional or substitute test for that component, when the unsatisfactory final mark was at least a four (not rounded off).

### **5.6 – Type of test**

1. Testing within a study component is done in the manner described in the University Course Catalogue and/or the digital learning environment.
2. At the student's request, the Board of Examiners may allow a test to be administered otherwise than as stipulated in the first clause.

### **5.7 – Oral testing**

1. Unless the Board of Examiners decides otherwise, only one person at a time may be tested orally.
2. Oral tests will be administered in public, unless the Board of Examiners or the examiner concerned decides otherwise, or if the student objects to this.
3. During the oral test, the presence of a second staff member is required.
4. A report is drawn up of the oral exam.

## **5.8 – Provision for testing in special cases**

1. The Board of Examiners may decide to grant an individual testing possibility if not providing such a possibility would result in a 'special case of manifest unfairness'.
2. Requests for a special possibility to take a test must be submitted to the Board of Examiners as soon as possible, with supporting evidence.
3. Article 5.5 is applicable by analogy to the individual testing possibility referred to in the first and second paragraph. This means that the student who:
  - has missed the regular final examination of the course due to circumstances beyond his or her control, and
  - sits the test after all by way of an individual testing possibility, will be given the opportunity to sit a supplementary or alternative test if he has been given an unsatisfactory final mark of at least a four.

## **5.9 – Time limit for marking tests**

1. The examiner will determine the mark immediately, or within 24 hours, after administering an oral test, and will provide the student with written proof of the outcome and provide the administration of the School with the relevant information.
2. The examiner will record the assessment of a test, whether written or taken in another manner, within 10 working days of the day on which this test was taken and will supply the School's administration with the data required for it to issue the student with the written or electronic proof of this assessment.
3. If the mark is not available within this period of time, the examiner must communicate this to the student, indicating when the mark will be determined. Force majeure may only be established in consultation with the education director.

4. The written proof of the outcome shall inform the student of the right of inspection referred to in article 5.11 and of the possibility to appeal to the Examinations Appeals Board.

### **5.10 – Period of validity**

1. The term of validity of courses passed is unlimited. Contrary to this, the Board of Examiners may impose an additional or alternative test for a course, the test for which was passed more than five years earlier, if the knowledge or understanding being examined is demonstrably out of date, or if the skills being examined are demonstrably out of date.
2. The period of five years referred to in paragraph 1 will be extended by the number of months of financial support that the student has been granted on the grounds of the Profiling Fund (*profileringsfonds* - for special financial support to students) as referred to in paragraph 2a of the Higher Education and Research Act and the period granted or an extension of the performance-related grant due to a disability or chronic illness.
3. Partial tests and assignments which were passed will lose their validity if the course within which they were taken was not passed.

### **5.11 – Right of inspection**

1. Upon request, the student will be allowed to inspect the marked work for twenty working days after the result of a written test has been announced. Test questions and assignments will be collected after the test has been taken and after inspection of the test.
2. During the period mentioned in clause 1, the student may inspect the questions and assignments of the test concerned, and the standards on which the mark was based.

### **5.12 – Storage time of test papers**

1. The assignments, their completion and the work assessed in the written tests will be kept (in paper or digital form) for a period of two years following the assessment.
2. The reports of research projects and the writing assignment as well as the assessment forms will be kept (in paper or digital form) for a period of seven years following the assessment.

## 5.13 – Exemption and credit transfer

1. At the student's request, the Board of Examiners may, after consulting the examiner concerned, grant the student exemption of (part of) the electives from a programme if they:
  - a. has completed an equivalent component of a university master's programme prior to the start of this master's programme; or
  - b. has demonstrated through work or professional experience that they have sufficient knowledge and skills in relation to that component.
2. Exempted components must be part of the electives and have a maximum credit load of 12 credits.
3. At the request of the student, and after the advice of the programme coordinator, the Board of Examiners may allow a component passed at an institution for higher education to count towards the programme's examination requirements, if:
  - a. The components are passed at the start of the programme or while registered for the programme, for example during an exchange semester;
  - b. The components were not used for a diploma of another degree.
4. In case of components where credit transfer is approved, the Board of Examiners decides what result is published and which study workload is coupled to the result.
5. Students are not allowed to use credits obtained within a programme of the Graduate School of Life Sciences within another programme of the Graduate School of Life Sciences.

## 5.14 – Fraud and plagiarism

- a. Fraud and plagiarism are defined as an action or omission on the part of students which produces an incorrect representation of their own performance as regards their knowledge, skills and understanding, which may result in the examiner no longer being able to assess the knowledge or ability of the students in a proper and fair manner.
- b. Fraud includes:
  - i. cheating during examinations. The person offering the opportunity to cheat is an accessory to fraud;

## SECTION 5 – TESTING

- ii. use of tools and resources during examinations such as preprogramed calculators, mobile phones, books, smart watches, smart glasses, course readers, notes, etc., consultation of which is not explicitly permitted;
  - iii. having others carry out all or part of an assignment and posing as own work;
  - iv. gaining access to questions or answers of an examination prior to the date or time that the test takes place;
  - v. making up survey or interview answers or research data;
  - vi. signing attendance forms, assessment forms i.e., in the name of someone else.
- c. Plagiarism is defined as including data, codes or sections of text from others/the student's own work in a writing assignment or other paper without quoting the source. Plagiarism includes the following:
- i. cutting and pasting text from digital sources such as PowerPoint slides, encyclopedias, internet pages and digital publications without using quotation marks and referring to the source;
  - ii. using excerpts from printed material such as books, magazines or other publications or encyclopedias without using quotation marks and referring to the source;
  - iii. using a translation of the abovementioned texts without using quotation marks and referring to the source;
  - iv. paraphrasing the abovementioned sources without referring to the (sound) source: paraphrasing should be marked in such a way that it does not suggest the text is the students range of thought;
  - v. using visual, audio or test material from others without referring to the source and presenting this as own work;
  - vi. resubmission of the student's own earlier work without source references and allowing this to pass for work originally produced for the purpose of the course, unless this is expressly permitted in the course or by the lecturer.
  - vii. using the work of other students and passing this off as own work. If this happens with the permission of the other student, the latter is also guilty of plagiarism;

- viii. in the event that, in a joint paper, one of the authors commits plagiarism, the other authors are guilty of plagiarism, if they could or should have known that the other was committing plagiarism;
  - ix. submitting papers obtained from a commercial institution (such as an internet site offering excerpts or papers) or having such written by someone else in return for payment.
1.
    - a. In all cases in which fraud or plagiarism is found or suspected, the examiner will inform the student and the Board of Examiners of this in writing.
    - b. The Board of Examiners will give the student a possibility to:
      - i. respond to that in writing;
      - ii. to be heard.
  2. The Board of Examiners will determine whether fraud or plagiarism has occurred and will inform the student of its decision in writing and of the sanctions in accordance with the stipulations of the fourth paragraph, stating the possibility of appeal to the Examinations Appeals Board.
  3. Fraud and plagiarism will be punished by the Board of Examiners as follows:
    - a. in any event:
      - i. invalidation of the paper or test submitted;
      - ii. a reprimand, a note of which will be made in OSIRIS.
    - b. in addition – depending on the nature and scale of the fraud or plagiarism, and on the student's phase of study – one or more of the following sanctions:
      - i. removal from the study component;
      - ii. no longer being eligible for a positive degree classification (cum laude) as referred to in article 6.2;
      - iii. exclusion from participation in tests or other forms of testing belonging to the educational component concerned for the current study year, or for a period of 12 months;
      - iv. complete exclusion from participation in all tests or other forms of testing for a period of 12 months;

## SECTION 5 – TESTING

- v. exclusion from participation in the Honours Programmes as referred to in article 3.10.
  - vi. in the event that the student has already received a reprimand:
  - vii. complete exclusion from participation in all tests or other forms of testing for a period of 12 months.
- c. in the case of extremely serious and/or repeated fraud, the Board of Examiners may recommend the Executive Board to permanently terminate the registration for the programme of the student in question.
4. If the Board of Examiners determines that there has been widespread or organised fraud, on a scale which would affect the test results in their entirety, the Board of Examiners will decide without delay that the test concerned is invalid and that all the participants must resit the whole test at short notice. The Board of Examiners will set the date on which the test must be retaken. This date will be no later than ten working days after the fraud was established, so that the participants can still benefit from their preparatory work for the test.

## SECTION 6 – EXAMINATIONS

### 6.1 – Examination

1. After the student has fulfilled the requirements of the examinations programme, the Board of Examiners will determine the result of the examination and award a degree certificate as referred to in article 6.4 of this regulation.
2. Prior to determining the examination result, the Board of Examiners may examine the student's knowledge with regard to one or more components or aspects of the degree programme, if and in so far as the results of the relevant tests give them reason to do so. The Board of Examiners will conduct such an investigation if it establishes that there are certain facts or circumstances that led it to the conclusion that the Board of Examiners cannot vouch for the student having obtained the exit qualifications for the course (as referred to in Art. 3.1 of the Education and Examination Regulations)
3. Assessment of the examinations file constitutes part of the final examination. The date of examination will be the last working day of the month in which the Board of Examiners has determined that the student has fulfilled the requirements of the examinations programme. The student must be registered for the degree programme on the date on which the examination is held.
4. The examination will be passed on condition that all components have been passed.
5. A further condition for passing the examination and receiving the certificate is that the student was registered for the course during the period in which the tests and the examination were taken. If the student does not fulfil this condition, the Executive Board may issue a statement of no objection in relation to the passing of the examination and the issue of the certificate, after the student has paid the tuition fees and administration charges owing for the 'missing' periods.
6. A student who has passed an examination and is therefore entitled to be awarded a certificate, may request that the Board of Examiners delay the granting of the certificate and the date of the examination. Such a request must be submitted within ten working days after the student has been informed of the examination results, stating the date on which the student wishes to receive the certificate. The Board of Examiners will in any case grant the request in the academic year 2022-2023 if the student:
  - plans to fulfil a management position for which Utrecht University has provided a board activities grant.
  - will do an internship or component abroad

## SECTION 6 – EXAMINATIONS

Postponement of the examination date is possible only once and for the duration of one academic year at the most. Postponement may only be granted for the duration of thirteen months for students who want to make use of tuition fee-board activities.

### 6.2 – Cum laude classification

1. The 'cum laude' classification will be awarded to the master's student if each of the following conditions has been met:
  - a. a mark of at least 8.5 has been earned for the major research project (including any extensions);
  - b. a mark of at least 8.5 has been earned for the profile<sup>8</sup> (including any extensions);
  - c. a mark of at least 8.5 has been earned for the writing assignment;
  - d. a weighted (to credits) average mark of at least 8.0 has been earned for the other components of the programme. Electives which are used to extend the Research Project are viewed as part of the Research Project and do not count toward this weighted average;
  - e. no re-examinations or substitute or replacement tests were taken;
  - f. exemptions that do not count have been obtained for no more than 12 credits;
  - g. the Board of Examiners has not taken any decision (as referred to in article 5.14, clause 4 under b) that fraud/plagiarism was committed;
  - h. the final examination of the master's Degree Programme was passed within 1,5 times the normal study duration.

In exceptional cases, the Board of Examiners may deviate from these rules.

2. For Biofabrication, the 'cum laude' classification is applicable when students pass their education in Australia with High Distinction (85% or higher).
3. For Epidemiology condition b of clause 1 is not applicable.
4. For Epidemiology Postgraduate, conditions b and c of clause 1 are not applicable.
5. For Science and Business Management clause b is applicable for the *business internship* and clause c is not applicable.

### 6.3 – Degree

1. The Master of Science (MSc) degree will be awarded to students who pass the examination.
2. The degree awarded will be stated on the examination certificate.
3. The examination certificate will also state the master's degree and the specific master's programme followed.

## **6.4 – Degree certificate and IDS**

1. The Board of Examiners will award a certificate as proof that the examination was passed. One certificate will be issued for each Graduate School degree, even if a student completes several programmes within that degree.
2. The Board of Examiners will add the International Diploma Supplement in the English language to this certificate, which provides (international) insight into the nature and contents of the completed study programme.

## **6.5 – Honours**

If one of the Honours programmes as referred to in article 3.10 has been passed, a separate certificate will be awarded on which this is stated.

## **6.6 – Grading Tables**

1. The International Diploma Supplement gives the student's weighted average final mark and an ECTS Grading Table.
2. The weighted average mark represents the academic performance of the student on a scale of 1 to 10. It is calculated based on the applicable numerical results for the courses the student has passed within the examination programme. Courses that have not been assessed numerically do not count towards the calculation. Weighting is based on the credits per course.
3. The ECTS Grading Table makes the grading culture of Utrecht University clear to foreign education institutions and foreign employers, who can then convert the marks into their own grading system based on the Grading Tables. The ECTS Grading Table is an institution wide table for all master's degree programmes. This table uses a ten-point scale, where only the marks from six to ten are shown because only passes are shown in the Grading Table. The marks are expressed in whole or half-marks. The percentage given with the mark indicates how often this mark is awarded.

## SECTION 6 – EXAMINATIONS

4. The calculation of the ECTS Grading Table is based on all valid passes, except alphanumerical results, not weighted according to study load, in the three most recent academic years, of students who were actively registered for a master's degree programme at Utrecht University.

## **SECTION 7 – STUDENT COUNSELLING**

### **7.1 – Students’ progress records**

1. The School records individual student’s results and makes them available through OSIRIS student (the university student administration system).
2. A certified student progress file can be obtained from the School’s administration.

### **7.2 – Student counselling**

1. The School will ensure adequate study support for those students registered for a master’s degree.
2. Student support encompasses:
  - appointment of a study supervisor<sup>14</sup> who is responsible for:
    - i. encouraging students to feel part of the community;
    - ii. supervising programme choices;
    - iii. assisting a student to get his bearings on the job market.
  - referring and assisting students who encounter difficulties during their studies.

### **7.3 – Disability and chronic illness**

Students with a disability or chronic illness will be offered the opportunity to take courses and sit examinations in an adapted manner as laid out in his/her Education Facilities Contract. Requests for such a provision must be submitted in OSIRIS-student.

## **SECTION 8 – TRANSITIONAL AND FINAL PROVISIONS**

### **8.1 – Safety-net scheme**

In cases for which these Education and Examination Regulations make no (clear) provision the decision will be made:

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<sup>14</sup> The role of study supervisor is carried out by the programme coordinator and the academic counsellor.

## SECTION 8 – TRANSITIONAL AND FINAL PROVISIONS

- a. by the Board of Examiners if on the basis of Articles 7.3h, 7.11 and 7.12b of the Act or on the basis of Articles 3.6 to 3.9, 5.5 to 5.10, 5.13-5.14, 6.1-6.2 and 7.4 of these Education and Examination Regulations this falls within the competence of the Board of Examiners;
- b. in all other cases by the dean or an officer appointed for this purpose on behalf of the dean, after the Board of Examiners has expressed its view.

In case of differences (of interpretation) between the Dutch and English version of these Education and Examination Regulations, the Dutch version prevails.

### **8.2 – Hardship clause**

In accordance with the rules laid down in these Education and Examination Regulations, the Board of Examiners will decide, unless this would have manifestly unreasonable consequences for the student that due to special circumstances are disproportionate to the purposes to be served by the rule.

### **8.3 – Amendments**

1. Amendments to these regulations will be adopted by the Dean in a separate resolution in consultation with the Education Committee and after the approval of the faculty councils for Science and Veterinary Medicine and the Education and Research committee of the UMC Utrecht, with preservation of the granted rights.
2. Amendments to these regulations shall not apply to the current academic year, unless it is reasonable to assume that they will not harm the interests of the students.
3. Furthermore, amendments may not have an adverse effect on students as regards any decision taken in relation to a student pursuant to these regulations.

### **8.4 – Publication**

The Dean shall ensure proper publication of these regulations, and of the rules and guidelines adopted by the Board of Examiners, and of any amendment to these documents, on the [School's website](#).

### **8.5 – Effective date**

These Education and Examination Regulations come into force on September 5<sup>th</sup>, 2022 and replace the Education and Examination Regulations of all previous academic years.

## APPENDICES

### Appendix 1. Maximum number of admissions each academic year (article 2.3 clause 7)

Master's programme:	Maximum number of admissions
Biofabrication	15
Bioinformatics and Biocomplexity	40
Bio Inspired Innovation	30
Biology of Disease	40
Cancer, Stem Cells and Developmental Biology	40
Drug Innovation	48
Environmental Biology	60
Epidemiology	no maximum
Epidemiology Postgraduate	no maximum
Health and Environment <sup>15</sup>	no maximum
Infection and Immunity	30
Medical Imaging	no maximum
Molecular and Cellular Life Sciences	60
Neuroscience and Cognition	60
One Health <sup>15</sup>	25
Regenerative Medicine and Technology	30
Science and Business Management	60
Toxicology and Environmental Health <sup>15</sup>	no maximum

### Appendix 2. Composition of the master's programmes (ad. article 3.6)<sup>16</sup>

<sup>15</sup> One Health and Toxicology and Environmental Health will be merged into the new Health and Environment programme from 1-9-2022. The intake of the old programmes will stop from 31-8-2022.

<sup>16</sup> Definitions courses:

## Biofabrication

### *Distribution credits*

#### **Dutch/International students with single degree:**

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1.5	BMB509718
Major research project	51	BMB500303
Profile <sup>8</sup>	33	varied
Writing assignment	7.5	BMB463007
Free elective components	12	varied
Master's courses	15	see below
Total	120	

### *Tracks*

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

Master's courses regular programme:

#### **Mandatory courses (15 EC):**

Introduction to Biofabrication	15	BMB502415
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### *Profiles*

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics

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Mandatory courses: mandatory for each student in this programme or a specific track.

Primary theoretical courses: a choice has to be made from a specified list of courses for a certain number of credits by all students from the programme or a specific track.

Secondary theoretical courses: in case courses are divided over two separate lists (for example core courses and advanced courses) a choice has to be made from a second specified list of courses for a certain amount of credits by all students from the programme or a specific track.

<sup>17</sup> 1 week Introducing Life Sciences (26 hours), 3 Navigation Towards Personal Excellence workshops and 7 Life Sciences Seminars, of which 2 seminars can be followed outside the GSLS after approval of the programme coordinator. Students that started the master's programme before September 2018 can follow the old version of the introduction course (BMB509713) and Life Sciences Seminars (BMB509214 or GSLS-SEMIN).

- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## Bioinformatics and Biocomplexity

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	GSLs-ACAD
Major research project	51	GSLs-MAJRP
Profile <sup>8</sup>	33	varied
Writing assignment	7,5	GSLs-WRIAS
Free elective components	12	varied
Master's courses	15	see below
Total	120	

### ***Tracks***

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

### ***Master's courses regular programme:***

#### **Mandatory courses (9.5 EC):**

BIBC Essentials	4.5	B-MBIOCES
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*At least one (5 EC) of the following courses <sup>18</sup>:*

Introduction to Biological Modelling	5	B-MBIOINBM
Bioinformatics and Genomics	5	B-MBIOGEN

#### **Primary theoretical courses (choose at least 5.5 EC):**

Basic Machine Learning	3	B-MBIOBMLB
Bioinformatics and evolutionary genomics	3	B-MBIEG06

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<sup>18</sup> The choice of one of the two theoretical courses is after consultation with the coordinator and is based on the student's previous knowledge. The course Biological Modeling (B-MBIMOD) can also be followed with enough previous knowledge.

## APPENDICES

Structural bioinformatics and modelling	4,5	SK-MCBIM21 <sup>19</sup>
Advanced R for Life sciences	3	B-MADR19
Advanced Bioinformatics: data mining and data integration for Life Sciences	1.5	BMB502114
Advanced Omics for life sciences	1.5	BMB502316
Introduction to research data management	3	B-MINRDM
Analytics and Algorithms for Omics Data	3	BMB508219
Microbial Genomics	4,5	B-MBIMIGE <sup>20</sup>
Cancer Genomics	3	BMB521219
Computational Biology	7.5	B-MCOBI17
Biological Modeling	5	B-MBIMOD

### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## **Bio Inspired Innovation**

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	GSLs-ACAD
Major research project Profile <sup>8</sup>	42-51 <sup>21</sup>	GSLs-MAJRP varied
Writing assignment	7,5	GSLs-WRIAS
Free elective components	12	varied
Master's courses	15	see below

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<sup>19</sup> The course SK-MCBIM21 can be replaced by the course SK-MSTBIMO if it has been completed successfully.

<sup>20</sup> The course B-MBIMIGE can be replaced by the course B-MCMIGE if it has been completed successfully.

<sup>21</sup> Students Bio Inspired Inspiration are allowed to conduct a major research project of 42 credits and 9 credits in extra theoretical courses, subject to the approval by the programme coordinator.

Total 120

### **Tracks**

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

### **Master's courses regular programme:**

#### **Mandatory courses (15 EC):**

Bioinspiration & Value Creation	7,5	B-MBIVA
Integrative Bio-Inspired Design: the systems level	7,5	B-MIBID

### **Profiles**

Students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## **Biology of Disease**

### **Distribution credits**

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718
Major research project	51	BMB500303
Profile <sup>8</sup>	33	varied
Writing assignment	7,5	BMB463007
Free elective components	12	varied
Master's courses	15	see below
Total	120	

### **Tracks**

Students of this master's programme can choose the following tracks:

## APPENDICES

- Regular programme (no track)
- Cardiovascular Research

### ***Master courses regular program:***

#### **Mandatory courses (3 EC):**

*Students started until 1 September 2017:*

Mechanisms of disease	3	BMB500503
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*Students started from 1 September 2017:*

Kick-off Biology of Disease	3	BMB510817
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#### **Primary theoretical courses (choose in total 12 EC):**

Biomolecular and Cellular Cardiology	3	BMB403905
Essentials of Neuroscience	3	BMB416005
Biology of Disease – Immunity and Infection	3	BMB501103
Metabolic Pathways	3	BMB501314
Thrombosis and Haemostasis	3	BMB508212
Cardiovascular Immunology	3	BMB509113
Cardiac Regenerative Medicine	3	BMB580117
Vascularized Tissue Engineering	3	BMB507317
Cardiovascular Epidemiology	1,5	BMB507818

#### **Courses within the track Cardiovascular Research<sup>22</sup>:**

#### **Mandatory courses (3 EC):**

Kick-off Biology of Disease	3	BMB510817
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#### **Primary theoretical courses (choose in total 12 EC):**

Biomolecular and Cellular Cardiology	3	BMB403905
Cardiovascular Immunology	3	BMB509113
Thrombosis and Haemostasis	3	BMB508212
Cardiac Regenerative Medicine	3	BMB580117
Cardiovascular Epidemiology	1,5	BMB507818
Vascularized Tissue Engineering	3	BMB507317

### ***Profiles***

Single degree students of this master's programme can choose the following profiles:

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<sup>22</sup> In this track the major research project and writing assignment have to be in the chosen respective research field.

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## Cancer, Stem Cells and Developmental Biology

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718
Major research project Profile <sup>8</sup>	51	BMB500303
Writing assignment	33	varied
Free elective components	7,5	BMB463007
Master's courses	12	varied
Total	15	see below
	120	

### ***Tracks***

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

### ***Master courses regular program:***

#### **Mandatory courses (3 EC):**

Introducing Cancer, Stem Cells & Dev. Biology	3	BMB505416
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#### **Primary theoretical courses (choose in total 12 EC):**

Advanced Bioinformatics: data mining and data integration for life sciences	1,5	BMB502114
Advanced Omics for Life Sciences	1,5	BMB502316
Advanced R for Life Sciences	3	B-MADR19
Analytics and Algorithms for Omics Data	3	BMB508219
Bioinformatics in Neuroscience	3	BMB508117
Cancer Genomics	3	BMB521219

## APPENDICES

Cell organisation in Health and Disease	1,5	BMB436006
Chromosome Instability in Cancer	1,5	BMB404107
Concepts in Cancer Biology	1,5	BMB400306
Developmental Genetics	1,5	BMB506508
Digital Pictures: Data Integrity and Display	1	BMB507009
Gene Expression, Epigenetics and Disease	3	BMB509413
Introduction to Bioinformatics for Life Sciences	4,5	B-MINBI19
Introduction Biomolecular Mass Spectrometry	1,5	SK-MBAPBMS
Introduction to Python for Life Sciences	3	BMB465019
Introduction to R for Life Sciences	3	BMB502219
Introduction to Research Data Management	3	B-MINRDM
Introduction to Stem Cells	3	BMB509013
Metabolic pathways: from cell to disease	3	BMB501314
Model Organism Genetics	1,5	BMB505316
Zebrafish in Development, Organogenesis and Disease	1,5	BMB451007

*Every other GSLS course with a maximum of 4,5 EC. Approval by the program coordinator is needed.*

### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## **Drug Innovation**

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	GSLS-ACAD
Major research project	51	GSLS-MAJRP
Profile <sup>8</sup>	33	varied
Writing assignment	7,5	GSLS-WRIAS
Free elective components	12	varied
Master's courses	15	see below

Total 120

### **Tracks**

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

### **Master courses regular program:**

#### **Mandatory courses (15 EC):**

Drug Discovery	7,5	DI-408-09
Drug Development and Regulation	7,5	DI-409-09

### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## **Environmental Biology**

### **Distribution credits**

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	GSLs-ACAD
Major research project	51	GSLs-MAJRP
Profile <sup>8</sup>	33	varied
Writing assignment	7,5	GSLs-WRIAS
Free elective components	12	varied
Master's courses	15	see below
Total	120	

### **Tracks**

Students of this master's programme can choose the following tracks:

- Ecology and Natural Resource Management

## APPENDICES

- Behavioural Ecology
- Plant Biology
- Fungal Biology

### Courses within the track Ecology and Natural Resource Management<sup>23</sup>:

#### **Mandatory courses (15 EC):**

Exploring your research impact	1,5	B-MEBSDG
Ecology of Natural Resources	7	B-MENR19
Management of Natural Resources in Context	6,5	B-MNMAN19

### Courses within the track Behavioural Ecology<sup>23</sup>:

#### **Mandatory courses (9 EC):**

Exploring your research impact	1,5	B-MESBDG
Measuring Behaviour	1,5	B-MMBE07
Evolutionary Perspectives of Sexual Behaviour	6	B-MEPSB

#### **Primary theoretical courses (choose at least 6 EC):**

Zoo Conservation Biology	6	B-MZCB
Primate social behaviour	2,5	B-MPCEMD
Ethology and welfare	6	BMB503905
Ecology of Natural Resources	7	B-MENR19
Management of Natural Resources in Context	6,5	B-MNMAN19
Plant Environment Interactions	3	B-MPEI
Applied Plant Biology	4,5	B-MEAPB
Plant Microbe Interactions	3	B-MEPMI
Fungal Biology	9	B-MEBIFB19
Introduction to Bioinformatics for Life Sciences	4,5	B-MINBI19
Microbial Genomics	4,5	B-MBIMIGE
Biotechnology	5	B-MBITEC
Basics of Biostatistics (online course)	4,5	BMB507217
Advanced R for Life Sciences	3	B-MADR19
Introduction to R for Life Sciences	3	BMB502219

*Every other UU master course that fits within this track. Approval by the program coordinator and the track coordinator is needed.*

### Courses within the track Plant Biology<sup>23</sup>:

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<sup>23</sup> The major research project has to be in the chosen research field.

**Mandatory courses (12 EC)**

Exploring your research impact	1,5	B-MESBDG
Applied Plant Biology	4,5	B-MEAPB
Plant Microbe Interactions	3	B-MEPMI
Plant Environment Interactions	3	B-MPEI

**Primary theoretical courses (choose at least 3 EC):**

Ecology of Natural Resources	7	B-MENR19
Management of Natural Resources in Context	6,5	B-MNMAN19
Evolutionary Perspectives on Sexual Behaviour	6	B-MEPSB
Zoo Conservation Biology	6	B-MZCB
Measuring Behaviour	1,5	B-MMBE07
Primate social behaviour	2,5	B-MPCEMD
Fungal Biology	9	B-MEBIFB19
Introduction to Bioinformatics for Life Sciences	4,5	B-MINBI19
Microbial Genomics	4,5	B-MBIMIGE
Biotechnology	5	B-MBITEC
Basics of Biostatistics (online course)	4,5	BMB507217
Advanced R for Life Sciences	3	B-MADR19
Introduction to R for Life Sciences	3	BMB502219

*Every other UU master course that fits within this track. Approval by the program coordinator and the track coordinator is needed.*

Courses within the track Fungal Biology<sup>23</sup>:

**Mandatory courses (10,5 EC):**

Exploring your research impact	1,5	B-MESBDG
Fungal Biology	9	B-MEBIFB19

**Primary theoretical courses (choose at least 4,5 EC)**

Ecology of Natural Resources	7	B-MENR19
Management of Natural Resources in Context	6,5	B-MNMAN19
Evolutionary Perspectives on Sexual Behaviour	6	B-MEPSB
Zoo Conservation Biology	6	B-MZCB
Measuring Behaviour	1,5	B-MMBE07
Primate social behaviour	2,5	B-MPCEMD
Applied Plant Biology	4,5	B-MEAPB
Plant Environment Interactions	3	B-MPEI
Plant Microbe Interactions	3	B-MEPMI
Introduction to Bioinformatics for Life Sciences	4,5	B-MINBI19
Microbial Genomics	4,5	B-MBIMIGE

## APPENDICES

Biotechnology	5	B-MBITEC
Basics of Biostatistics (online course)	4,5	BMB507217
Advanced R for Life Sciences	3	B-MADR19
Introduction to R for Life Sciences	3	BMB502219

*Every other UU master course that fits within this track. Approval by the program coordinator and the track coordinator is needed.*

### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## **Epidemiology**

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718
Research project	65	BMB502109
Writing assignment	7,5	BMB463007
Free electives components	12	varied
Master's courses	34	see below
Total	120	

### ***Tracks***

Students of this master's programme can choose the following tracks<sup>24</sup>:

- Clinical Epidemiology
- Epidemiology of Infectious Diseases
- Medical Statistics

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<sup>24</sup> De tracks from Epidemiology (postgraduate) are also called specialization programme.

- Occupational and Environmental Epidemiology
- Pharmacoepidemiology
- Veterinary Epidemiology

Courses within all tracks:

**Mandatory courses (21 EC):**

Introduction to Epidemiology	3	BMB402914
Introduction to Statistics	1,5	BMB404014
Study Design in Etiologic Research	3	BMB403615
Classical Methods in Data Analysis	6	BMB403314
Modern Methods in Data Analysis	4,5	BMB417014
Presentation and Writing Research Proposals	2	BMB422016
Research Ethics and Society	1	BMB506714

Courses within the track Clinical Epidemiology<sup>25</sup> (13 EC):

**Mandatory courses (4,5 EC):**

Clinical Epidemiology	1,5	BMB509818
Clinical Trials and Drug Risk Assessment	1,5	BMB510818
Systematic Reviews in Intervention Research	1,5	BMB532818

**Primary theoretical courses (choose in total 3 EC):**

*Choose at least 1,5 EC from the list below:*

Advanced Diagnostic Research	1,5	BMB501818
Prognostic Research	1,5	BMB524818

*Choose at least 1,5 EC from the list below:*

Advanced Topics in Causal Research	1,5	BMB502818
Systematic Reviews of Diagnostic Studies	1,5	BMB530818
Systematic Review and Meta-Analysis of Prognosis studies	1,5	BMB531818

**Secondary theoretical courses:**

Choice of the courses from the master's programme Epidemiology to achieve a total of 13 EC for the specialisation programme.

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<sup>25</sup> For students who started before 1 September 2018, the specialisation programme Clinical Epidemiology is registered in OSIRIS with course code BMB507216 (13 EC)

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### Courses within the track Epidemiology of Infectious Diseases<sup>26</sup> (13 EC):

#### **Mandatory courses (6 EC):**

Clinical Epidemiology	1,5	BMB509818
Epidemiology of Infectious Diseases	1,5	BMB513818
Mathematical Modelling of Infectious Diseases	3	BMB524817

#### **Secondary theoretical courses:**

Choice of the courses from the master's programme Epidemiology to achieve a total of 13 EC for the specialisation programme.

### Courses within the track Medical Statistics<sup>27</sup> (13 EC):

#### **Mandatory courses (4,5 EC):**

Generalized Linear Models	1,5	BMB515818
Mixed Models	1,5	BMB520818
Computational Statistics	1,5	BMB511818

#### **Secondary theoretical courses:**

Choice of the courses from the master's programme Epidemiology to achieve a total of 13 EC for the specialisation programme.

### Courses within the track Occupational and Environmental Epidemiology<sup>28</sup> (13 EC):

#### **Primary theoretical courses (choose 6 EC)**

Exposure Sciences	3	BMB521717
Effects assessment in tox. and env. epidemiology	6	BMB505507
Risk assessment and risk management	3	BMB500803
Environmental Epidemiology	3	BMB504006

#### **Secondary theoretical courses:**

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<sup>26</sup> For students who started before 1 September 2018, the specialisation programme Epidemiology of Infectious Diseases is registered in OSIRIS with course code BMB507416 (13 EC).

<sup>27</sup> For students who started before 1 September 2018, the specialisation programme Medical Statistics is registered in OSIRIS with course code BMB507716 (13 EC).

<sup>28</sup> For students who started before 1 September 2018, the specialisation programme Occupational and Environmental Epidemiology is registered in OSIRIS with course code BMB508116 (13 EC).

Choice of the courses from the master's programme Epidemiology to achieve a total of 13 EC for the specialisation programme.

Courses within the track Pharmacoepidemiology<sup>29</sup> (13 EC):

**Mandatory courses (6 EC):**

Clinical Epidemiology	1,5	BMB509818
Clinical Trials and Drug Risk Assessment	1,5	BMB510818
Pharmacoepidemiology & Drug Safety	1,5	BMB536818
Pharmaceutical Policy Analysis	1,5	BMB537818

**Secondary theoretical courses:**

Choose from other Epidemiology/statistics courses to achieve a total of 13 EC for the specialisation programme.

Courses within the track Veterinary Epidemiology<sup>30</sup> (13 EC):

**Mandatory courses (8,5 EC):**

Economic Principles and Concepts for the Vet. Sc.	2,5	BMB512818
Study Design in Veterinary Epidemiological Research	1,5	BMB535818
Epidemiology of Animal Infectious Diseases	3	BMB538818
Hands-on Veterinary Sciences	1,5	BMB534818

**Secondary theoretical courses:**

Choice of the courses from the master's programme Epidemiology to achieve a total of 13 EC for the specialisation programme.

**Profiles**

Single degree students of this master's programme can choose the following profiles:

- None

**Epidemiology Postgraduate**

***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Research project	56	BMB504809
Master's courses	34	see below

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<sup>29</sup> For students who started before 1 September 2018, the specialisation programme Pharmacoepidemiology is registered in OSIRIS with course code BMB508416 (13 EC).

<sup>30</sup> For students who started before 1 September 2018, the specialisation programme Epidemiology is registered in OSIRIS with course code BMB508716 (13 EC).

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Total 90

Students can follow this master programme online or face-to-face. See the face-to-face courses listed under H. For the online courses see below.

### **Tracks**

#### Tracks online variant:

Students of this online master's programme can choose the following tracks<sup>24</sup>:

- Clinical Epidemiology
- Veterinary Epidemiology
- General Epidemiology

#### Courses within the online programme all tracks:

##### **Mandatory courses (20 EC):**

Introduction to Epidemiology	1,5	BMB507711
Introduction to Statistics	1,5	BMB404014
Study Design in Etiologic Research	3	BMB403615
Classical Methods in Data Analysis	6	BMB403314
Modern Methods in Data Analysis	4,5	BMB417014
Presenting your research confidently	0,5	BMB505915
Writing Research Proposals	1,5	BMB422116
Research Ethics	1,5	BMB500916

#### Courses within the online programme track Clinical Epidemiology (14 EC):

##### **Mandatory courses (4,5 EC):**

Clinical Epidemiology	1,5	BMB509818
Clinical Trials and Drug Risk Assessment	1,5	BMB510818
Systematic Reviews in Intervention Research	1,5	BMB532818

##### **Primary theoretical courses (choose in total 3 EC):**

*Choose at least 1,5 EC from the list below:*

Advanced Diagnostic Research	1,5	BMB501818
Prognostic Research	1,5	BMB524818

*Choose at least 1,5 EC from the list below:*

Advanced Topics in Causal Research	1,5	BMB502818
Systematic Reviews of Diagnostic Studies	1,5	BMB530818
Systematic Review and Meta-Analysis of Prognosis studies	1,5	BMB531818

**Secondary theoretical courses:**

Choice of the courses from the master's programme Epidemiology to achieve a total of 14 EC for the specialisation programme.

Courses within the online programme track Veterinary Epidemiology (14 EC):

**Mandatory courses (8,5 EC):**

Economic Principles and Concepts for the Vet. Sc.	2,5	BMB512818
Study Design in Veterinary Epidemiological Research	1,5	BMB535818
Epidemiology of Animal Infectious Diseases	3	BMB538818
Hands-on Veterinary Sciences	1,5	BMB534818

**Secondary theoretical courses:**

Choice of the courses from the master's programme Epidemiology to achieve a total of 14 EC for the specialisation programme.

Courses within online programme track General Epidemiology (14 EC):

**Secondary theoretical courses:**

Choice of the courses from the master's programme Epidemiology to achieve a total of 14 EC for the specialisation programme.

**Profiles**

Single degree students of this master's programme can choose the following profiles:

- None

**Health and Environment**

***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718
Major research project	51	BMB500303
Profile <sup>8</sup>	33	varied
Writing Assignment	7,5	BMB463007
Elective component	12	wisselend
Theoretical Master's courses	15	see below
Total	120	

**Tracks**

Students of this master's programme can choose the following tracks:

## APPENDICES

- Regular programme (no track)

### Master courses regular programme:

#### **Mandatory courses:**

Fundamentals of Health and Environment	1,5	BMB4706022
Exposure	3	BMB4705022
Planetary health effects	3	BMB4707022
Capstone project	3	BMB4704022

#### **Primary theoretical courses (choose at least 4,5 EC):**

Advanced toxicology	4,5	BMB4703022
Advanced exposure and environmental epidemiology	4,5	BMB4701022
Advanced One Health research	4,5	BMB4702022

#### ***Profiles***

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## **Infection and Immunity**

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718
Major research project	51	BMB500303
Profile <sup>8</sup>	33	varied
Writing assignment	7,5	BMB463007
Free elective components	12	varied
Master's courses	15	see below

Total 120

### **Tracks**

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

#### Master courses regular programme:

#### **Mandatory courses (12 EC):**

Symposium	1,5	BMB401905
Bacterial Pathogenesis	3	BMB404506
Signalling and techniques in I&I	4,5	BMB459007
Vaccines	3	BMB507410

#### **Primary theoretical courses (3 EC):**

Clinical Immunology	3	BMB404707
Virology	3	BMB430006

### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## **Medical Imaging**

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718
Major research project	51	BMB500303

## APPENDICES

Profile <sup>8</sup>	20	varied
Writing assignment	7,5	BMB463007
Free elective components	15	varied
Master's courses	25	see below
Total	120	

### **Tracks**

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

#### Master courses regular programme:

##### **Mandatory courses (20 EC):**

Medical Image Formation	5	BMB501717
Team Challenge	5	BMB502317
Programming for Medical Imaging	5	BMB502417
Image Processing	5	BMB502817

##### **Primary theoretical courses (Choose 5 EC):**

Advanced MR Physics 1	5	BMB502717
Advanced MR Physics 2	5	BMB503317
Capita Selecta Medical Imaging	5	BMB502517
Capita Selecta Medical Image Analysis TU/e	5	BMB502217
Radioisotopes and ionizing radiation TU/e	2,5	BMB502117
Radiotherapy Physics	5	BMB502617
Radiation Physics TU/e	2,5	BMB503417
Electromagnetic fields in MRI TU/e	2,5	BMB503117

Ultrasound in (Bio)medical Engineering TU/e      5      BMB503217

*At least 5 credits (EC) have to be followed at the TU/Eindhoven.*

### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education

- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## Molecular and Cellular Life Sciences

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	GSLs-ACAD
Major research project Profile <sup>8</sup>	51	GSLs-MAJRP
Writing assignment	33	varied
Free elective components	7,5	GSLs-WRIAS
Master's courses	12	varied
	15	see below
Total	120	

### ***Tracks***

Students of this master's programme can choose the following tracks:

- Genes to Organisms
- Molecules and Cells
- Biophysics & Molecular Imaging

### Courses within the track Genes to Organisms<sup>23</sup>:

#### **Mandatory courses (3 EC):**

Genes to Organisms	3	B-MCG20
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#### **Primary theoretical courses (choose at least 3 EC):**

Molecules & Cells	3	SK-MCMC
Biophysics & Molecular Imaging	3	SK-MCBMI

#### **Secondary theoretical courses (choose at least 9 EC):**

Virology	3	BMB430006
Biotechnology	5	B-MBITEC
Plant-Environment Interactions	3	B-MPEI

## APPENDICES

Plant-Microbe Interactions	3	B-MEPMI
Bioinformatics and evolutionary genomics	3	B-MBIEG06
Model Organism Genetics	1,5	BMB505316
Developmental Genetics	1,5	BMB506508
Light Microscopy	3	B-MLMIC19
Microbial Genomics	4,5	B-MBIMIGE
Introduction Biomolecular Mass Spectrometry	1,5	SK-MBAPBMS
Applied Plant Biology	4,5	B-MEABP
Analytics and Algorithms for Omics Data	3	BMB508219
Gene Expression, Epigenetics & Disease	3	BMB509413

*Every other UU master course that fits within this track. Approval by the programme coordinator and the track coordinator is needed.*

### Courses within the track Molecules and Cells<sup>23</sup>:

#### **Mandatory courses (3 EC):**

Molecules & Cells	3	SK-MCMC
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#### **Primary theoretical courses (choose 3 EC):**

Genes to Organisms	3	B-MCG20
Biophysics & Molecular Imaging	3	SK-MCBMI

#### **Secondary theoretical courses (choose at least 9 EC):**

Virology	3	BMB430006
Applied Protein Crystallography	3	SK-MBPPC
Research in Intracellular Proces. and Cell Organis.	3	SK-INTRAPR
Biotechnology	5	B-MBITEC
Structural bioinformatics and modelling	4,5	SK-MCBIM21
Chemical Biology	7,5	FA-450
Light Microscopy	3	B-MLMIC19
Introduction Biomolecular Mass Spectrometry	1,5	SK-MBAPBMS
Design of anti-infective drugs	6	DI-FA-442
Applied Cryo-Electron Microscopy	3	SK-MCACEM

*Every other UU master course that fits within this track. Approval by the programme coordinator and the track coordinator is needed.*

### Courses within the track Biophysics & Molecular Imaging<sup>23</sup>:

#### **Mandatory courses (3 EC):**

Biophysics & Molecular Imaging	3	SK-MCBMI
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**Primary theoretical courses (Choose 3 EC):**

Molecules & Cells	3	SK-MCMC
Genes to Organisms	3	B-MCG20

**Secondary theoretical courses (choose at least 9 EC):**

Advanced Biomolecular Mass Spectrometry	3	SK-MADPBMS
Applied Protein Crystallography	3	SK-MBPPC
Microscopy: Advanced microscopy	7,5	NS-EX423M
Structural bioinformatics and modelling	4,5	SK-MCBIM21

Light Microscopy	3	B-MLMIC19
Advanced Biomolecular NMR	4,5	SK-MCABNMR
Applied Cryo-Electron Microscopy	3	SK-MCACEM

*Every other UU master course that fits within this track. Approval by the programme coordinator and the track coordinator is needed.*

**Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

**Neuroscience and Cognition**

***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718
Major research project	51	BMB500303
Profile <sup>8</sup>	33	varied
Writing assignment	7,5	BMB463007

## APPENDICES

Free elective components	12	varied
Master's courses	15	see below
Total	120	

### **Tracks**

Students of this master's programme can choose the following tracks:

- Cognitive Neuroscience
- Experimental and Clinical Neuroscience

#### Courses within the track Cognitive Neuroscience<sup>22</sup>:

##### **Mandatory courses (15 EC):**

Fundamentals of Neuroscience	15	BMB500103
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#### Courses within the track Experimental and Clinical Neuroscience<sup>22</sup>:

##### **Mandatory courses (15 EC):**

Fundamentals of Neuroscience	15	BMB500103
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### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## **One Health**

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718

Major research project	51	BMB500303
Profile <sup>8</sup>	33	varied
Writing assignment	7,5	BMB463007
Free elective components	12	varied
Master's courses	15	see below
Total	120	

### **Tracks**

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

### Master courses regular programme:

#### **Mandatory courses (15 EC):**

Basic Principles of Biostatistics,

Epidemiology and Infection and Immunity	1,5	BMB520817
Interdisciplinary Research in One Health	1,5	BMB519817
Introduction in One Health	1,5	BMB518817
Infectious Diseases and One Health	3	BMB521817
Environmental Health	3	BMB521217
Risk Assessment in One Health	1,5	BMB523418

*Choose at least 3 EC from the list below:*

Mathematical Modeling of Infectious Diseases	3	BMB524817
Epidemiology of Animal Infectious Diseases	3	BMB538818

### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society

## APPENDICES

- Management
- Translational Life Sciences

### Regenerative Medicine and Technology

#### **Distribution credits**

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718
Major research project Profile <sup>8</sup>	51	BMB500303
Writing assignment	33	varied
Free elective components	7,5	BMB463007
Master's courses	12	varied
Total	15	see below
	120	

#### **Tracks**

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

#### Master courses regular programme:

#### **Mandatory courses (15 EC):**

Intro to RMT	15	BMB508612
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*At least 5 credits (EC) have to be followed at the TU/Eindhoven within the electives.*

#### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science
- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## Science and Business Management

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	GSLs-ACAD
Major research project	42-51 <sup>31</sup>	GSLs-MAJRP
Business internship	27	GSLs-ISHIP
Free elective components	0-3	varied
Master's courses	40,5-49,5	see below
Total	120	

### ***Tracks***

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

### Master courses regular programme:

#### **Mandatory courses (36,5 EC):**

Introduction to Science based companies	1,5	B-MSBISBC
Orientation on Presentation and Career	2	B-MSBOPC
International Business	5	B-MSBECO
Science based Entrepreneurship	5	B-MSBENSH
Financial Management	5	B-MSBFIMA
Marketing	5	B-MSBMAR
Operations management	5	B-MSBOPMA
Strategic Management and Innovation	5	B-MSBORBE
Public Procurement	3	B-MSBFUFO

#### **Primary theoretical courses (Choose as least 4-10 EC):**

Biotechnology	5	B-MBITEC
Metabolic pathways: from cell to disease	3	BMB501314
Essentials of Clinical Neuroscience	3	BMB416005
Biology of disease	3	BMB501103
Introduction to stem cells	3	BMB509018
Understanding drugs	3	DI-407
Adsorption, Kinetics and Catalysis	7,5	SK-MAKC
Advanced Energy Analysis	7,5	GEO-2508

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<sup>31</sup> Students of the master's programme Science and Business Management are allowed to conduct a major research project of 42 credits and 9 credits in extra theoretical courses, of which at least 6 EC substantive courses, subject to the approval of the programme coordinator

## APPENDICES

Biotechnology and the Societal Challenge 4 B-MSBBSC22

*Other UU master course that is linked to the research project. Approval needed from the programme coordinator.*

### **Profiles**

Single degree students of this master's programme can choose the following profiles:

- Bioinformatics, with deviated content: 42 EC major research project in the field of Bioinformatics and at least 12 EC electives of the Bioinformatics-profile (combined with 9 EC available from the major and 5 EC elective courses from SBM year 1).

## **Toxicology and Environmental Health**

### ***Distribution credits***

<u>Component:</u>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Life Sciences Academy <sup>17</sup>	1,5	BMB509718
Major research project	51	BMB500303
Profile <sup>8</sup>	33	varied
Writing assignment	7,5	BMB463007
Free elective components	12	varied
Master's courses	15	see below
Total	120	

### ***Tracks***

Students of this master's programme can choose the following tracks:

- Regular programme (no track)

### **Master courses regular programme:**

#### **Mandatory courses (15 EC):**

Risk Assessment and Risk Management	3	BMB500803
Effects Assessment in Toxicology and Environmental Epidemiology	6	BMB505507
Basic Principles in Toxicology and Environmental Health	1,5	BMB520717
Exposure Science	4,5	BMB521717

### ***Profiles***

Single degree students of this master's programme can choose the following profiles:

- Applied Data Science

- Bioinformatics
- Communication
- Complex Systems
- Education
- General Research
- Life Sciences and Society
- Management
- Translational Life Sciences

## Appendix 3. Composition profiles (ad artikel 3.6 lid 5) <sup>9</sup>

### Applied Data Science

<b>Mandatory courses (33 EC):</b>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Data Analytics 1: Supervised Learning and Visualization	7,5	INFOMDA1
Data Analytics 2: Battling the Curse of Dimensionality	7,5	INFOMDA2
Applied Data Science Project	18	GSLs-ADS18

*The applied data science project can be shortened to 10,5 EC. The remaining 7,5 EC can be obtained by following extra electives:*

Applied Data Science Project	10,5	GSLs-ADS10
Electives	7,5	varied

*The electives need to be approved by the programme coordinator.*

### Bioinformatics<sup>32</sup>

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<sup>32</sup> Electives can be used to extend the General Research profile with 6, 9 or 12 EC and to extend the Bioinformatics and Complex systems profiles with 12 EC. Approval needed from the board of examiners.

**Standard Bioinformatics profile (33 EC)****Mandatory courses (28,5 EC):**

	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Introduction to Bioinformatics for Life Sciences	4,5	B-MINBI19
Introduction to Python for Life Sciences	3	BMB465019
Introduction to R for Life Sciences	3	BMB502219
Bioinformatics Project	18	B-MBIOMLS

**Primary theoretical courses (Choose at least 4,5 EC):**

Basic Machine Learning	3	B-MBIOBMLB
Bioinformatics and Evolutionary Genomics	3	B-MBIEG06
Structural bioinformatics and modelling	4,5	SK-MCBIM21
Advanced R for Life Sciences	3	B-MADR19
Advanced Bioinformatics: data mining and data integration for life sciences	1,5	BMB502114
Advanced Omics for Life Sciences	1,5	BMB502316
Introduction to Research Data Management	3	B-MINRDM
Analytics and Algorithms for Omics Data	3	BMB508219
Microbial Genomics	4,5	B-MBIMIGE
Cancer Genomics	3	BMB521219

**Extended Bioinformatics profile (45 EC)**

Profile plus elective components (45 EC)

**Mandatory courses (43,5 EC):**

	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Introduction to Bioinformatics for Life Sciences	4,5	B-MINBI19
Introduction to Python for Life Sciences	3	BMB465019
Introduction to R for Life Sciences	3	BMB502219
Bioinformatics Project	33	B-MBIOPR33

**Primary theoretical courses (Choose at least 1,5 EC):**

Bioinformatics and Evolutionary Genomics	3	B-MBIEG06
Structural bioinformatics and modelling	4,5	SK-MCBIM21
Advanced R for Life Sciences	3	B-MADR19
Advanced Bioinformatics: data mining and data integration for life sciences	1,5	BMB502114
Advanced Omics for Life Sciences	1,5	BMB502316

Introduction to Research Data Management	3	B-MINRDM
Analytics and Algorithms for Omics Data	3	BMB508219
Microbial Genomics	4,5	B-MBIMIGE
Cancer Genomics	3	BMB521219

## Communication

<b>Mandatory Courses (28 EC):</b>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Internship Product Development	20	FI-MSECIPD
Communicating Science with the Public	5	FI-MSECCSP
Engaging Scientists with the Public	3	BMB614319

*The course Engaging Scientists with the Public can be replaced with one of the following courses, if a student successfully passed the course.*

Communicating Life Sciences	3	BMB507611
Science and Society	3	BMB507912
Societal Challenges for Life Sciences	3	BMB501917

### Primary theoretical courses (choose 5 EC):

Issues and Theories in SEC	5	FI-MSECITS
Professional Skills and Identity	5	FI-MSECPSI
Designing for Science Education in Formal and Informal Settings	5	FI-MSECDSE
Science in Society <sup>33</sup>	5	FI-MSECSIS

## Complex Systems<sup>34</sup>

### Standard Complex Systems profile (33 EC)

<b>Mandatory courses (18 EC):</b>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Complex Systems Research Project	18	GSLS-COSYS

### Primary theoretical courses (7,5 EC minimum):

Introduction to Complex Systems	7,5	WISM484
Master Level Computational Biology	7,5	B-MCOBI17
Master Level Biological Modeling	5	B-MBIMOD

<sup>33</sup> The Science in Society (FI-MSECSIS) can only be followed if a student did not follow the course Science and Society (BMB507912).

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### **Secondary theoretical courses (0-7,5 EC):**

Advanced Bioinformatics: data mining and data integration for life sciences

	1,5	BMB502114
Crowd Simulation	7,5	INFOMCRWS
Introduction to Bioinformatics for Life Sciences	4,5	B-MINBI19
Introduction to Python for Life Sciences	3	BMB465019
Introduction to R for Life Sciences	3	BMB502219
Seminar Mathematical Epidemiology	7,5	WISM436
Seminar Applications of Mathematics in Radiation Research	7,5	WISM409
Sociological Theory Construction and Model Building	7,5	200400064
Understanding Complexity: Economy and the Planet	7,5	NS-MO450M
Advanced Self-Organisation of Social Systems	5	(Groningen

University  
WMBY017-05)

### ***Extended Complex Systems profile (45 EC)***

Profile plus elective components (45 EC)

### **Mandatory courses (33 EC):**

Complex Systems Research Project	33	GSLs-COS33
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### **Primary theoretical courses (7,5 EC minimum):**

Introduction to Complex Systems	7,5	WISM484
Toy Models	7,5	SK-MTOYM
Master Level Computational Biology	7,5	B-MCOBI17
Master Level Biological Modeling	5	B-MBIMOD

### **Secondary theoretical courses (0-4,5 EC):**

Advanced Bioinformatics: data mining and data integration for life sciences

	1,5	BMB502114
Crowd Simulation	7,5	INFOMCRWS
Introduction to Bioinformatics for Life Sciences	4,5	B-MINBI19
Introduction to Python for Life Sciences	3	BMB465019
Introduction to R for Life Sciences	3	BMB502219
Seminar Mathematical Epidemiology	7,5	WISM436
Seminar Modelling Health Effects of Ionizing Radiation	7,5	WISM409
Sociological Theory Construction and Model Building	7,5	200400064
Understanding Complexity: Economy and the Planet	7,5	NS-MO450M
Advanced Self-Organisation of Social Systems	5	(Groningen

**Education*****Education- second-degree teaching qualification (33 EC)***

<b>Mandatory components (30 EC):</b>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Professional in Practice 1a	10	GSTPIP1A
Professional in Practice 1b	10	GSTPIP1B
Subject Teaching Methodology 1	5	GSTVAKD1B1
Pedagogy 1	5	GSTPED1

**Primary theoretical courses (choose 3 EC):**

Engaging Scientists with the Public	3	BMB614319
Communicating Life Sciences	3	BMB507611
Science and Society	3	BMB507912
Societal Challenges for Life Sciences	3	BMB501917

***Education- first-degree teaching qualification (33 EC)*****Mandatory courses (25 EC):**

Professional in Practice 2	10	GSTPIP2
Pedagogy 2	2,5	GSTPED2
Subject Teaching Methodology 2	7,5	GSTVAKD2B1

*Choose at least 5 EC from the list below:*

Leerpsychologie	5	GSTPKC01
Excellence and Differentiation in Secondary Education	5	GSTPKC07

**Primaire theoretische cursussen (5 EC):**

Toetsing en Beoordeling	5	GSTOKC01
Taalbeleid in Onderwijs en Maatschappij	5	GSTOKC10
History and Philosophy of Science for SEC	5	FI-MSECHP
Science in Society	5	FI-MSECSIS
Trends in Education and Communication	2,5	FI-MSECTSE
Trends in Science Communication	2,5	FI-MSECTSC

**Secondary theoretical courses (choose 3 EC):**

Engaging Scientists with the Public	3	BMB614319
Communicating Life Sciences	3	BMB507611
Science and Society	3	BMB507912

## APPENDICES

Societal Challenges for Life Sciences	3	BMB501917
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### General Research<sup>34</sup>

#### **Standard General Research profile (33 EC)**

<b>Mandatory courses (18-33) EC):</b>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
General Research Profile Project	18-33	BMB500820, GSLs-RPP

#### **Primary theoretical courses (0-15 EC):**

Adobe Illustrator and InDesign for Scientific Purposes	1,5	BMB504321
Logical Argumentation Science: Publishing, Proposals and Pitching	3	BMB505320

*Every GSLs elective or course approved (by the programme coordinator) that contributes to developing research skills of the student and/or the research profile project.*

#### **Extended General Research profile (39-45 EC)**

Profile with elective components (39-45 EC)

### Life Sciences and Society

<b>Mandatory courses (33 EC):</b>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Introduction	3	BMB619221
History and Philosophy of Life Sciences	3	BMB629221
Open Science	3	BMB639221
Diversity Perspectives in LS Research	3	BMB649221
Ethics and Research Integrity	3	BMB659221
Global Health	3	BMB669221
Perspectives of Life Sciences Institutions	3	BMB679221
Capstone Project	12	BMB699221

### Management

<b>Mandatory courses (30 EC):</b>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
International Business	5	B-MSBECO
Strategic Management and Innovation	5	B-MSBORBE

Operations management	5	B-MSBOPMA
Marketing	5	B-MSBMAR
Financial Management	5	B-MSBFIMA
Entrepreneurship	5	B-MSBENSH
Public Procurement	3	B-MSBFUFO

## Translational Life Sciences

<b>Mandatory courses (30 EC):</b>	<u>Credits (EC):</u>	<u>OSIRIS-code:</u>
Capstone Project	20	BMB632821
Profile courses and seminars	6 - 9	
Mandatory	6	BMB612821
Flexible	0 - 3	BMB622821
Personal development	4	BMB642821

### Primary theoretical courses (3 EC):

Every GSLS elective that is contributing to personal development or the capstone project.