

## **Appendix for the Bachelor degree programme in**

### **Biology**

#### **Appendix I            Learning outcomes of the Bachelor's degree programme (Article 1.3.a)**

Graduates are able to:

1. Explain general basic principles of biology and describe how they relate to each other;
2. Estimate the relevance of research results in one or more areas of biology published in academic journals and discuss these results with peers;
3. Describe fundamental and/or applied scientific research and recognize areas of interest within it;
4. Describe the relationship between various disciplines and integrate terms and concepts from the subject areas;
5. Recognise and analyse scientific problems, and design a scientific/academic approach to them in a systematic manner.
6. Under supervision, formulate a research hypothesis or propose a research design within their own discipline, and possess sufficient practical skills to conduct the research themselves;
7. Explain the societal relevance of the discipline, evaluate the related responsibilities and judge their individual role in that context.
8. Develop a work method independently and proactively, justify it, and carry it out in order to achieve a specific aim;
9. Contribute to and take responsibility for solving a specific problem or task in a specific role as part of a team;
10. Report about research in a structured manner, both orally and in writing;

The degree programme also offers the student:

11. To explore career opportunities and opportunities for follow-on degree programmes.

## **Appendix II            Majors and Minors of the degree programme (Article 2.1.4)**

The degree programme has the following Major(s):

- Behaviour and Neurosciences (BN)
- Biomedical Sciences (BMS)
- Ecology and Evolution (EE)
- Integrative Biology (IB)
- Molecular Life Sciences (MLS)

### **Minors available to students Biology**

- Minor Biomedical Life Sciences
- Minor Ecology & Evolution

Students can also participate in:

- Faculty minor programmes;
- University minor programmes
  - o The minor programme "Neuroscience" is not accessible for students from the Bachelor's degree programme Biology
- Minor programmes at other national universities;
- Minor programmes at international universities.

### Appendix III Course units in the propaedeutic phase

- List of course units; Article 3.1.1
- Compulsory order of examinations; Article 8.2

#### First semester (all majors):

Course unit name	ECTS
Basic Cell and Molecular Biology	5
Biostatistics 1	5
First Year Symposium	2
Genetics, Ecology & Evolution	5
Lab Course	3
Microbiology	5
Physiology	5

#### Second semester:

#### Majors Behaviour and Neurosciences, Biomedical Sciences, Molecular Life Sciences

Course unit name	ECTS
Behavioural Neurosciences	5
Cell Biology and Immunology	5
Metabolism	5
Molecules of Life	5
Research Skills in Life Sciences 1	2
Research Skills in Life Sciences 2	3
Research Skills in Life Sciences 3	5

#### Major Ecology & Evolution

Course unit name	ECTS
Behavioural Neurosciences	5
Biochemistry and Cell Biology in Ecology and Evolution	5
Ecophysiology of Plants and Animals	5
Evolutionary Ecology	5
Research Skills in Ecology and Evolution 1	5
Research Skills in Ecology and Evolution 2	5

### Major Integrative Biology – Option A\*

Course unit name	ECTS
Behavioural Neurosciences	5
Cell Biology and Immunology	5
Metabolism	5
Molecules of Life	5
Research Skills in Life Sciences 1	2
Research Skills in Life Sciences 2	3
Research Skills in Life Sciences 3	5

### Major Integrative Biology – Option B\*

Course unit name	ECTS
Behavioural Neurosciences	5
Biochemistry and Cell Biology in Ecology and Evolution	5
Ecophysiology of Plants and Animals	5
Evolutionary Ecology	5
Research Skills in Ecology and Evolution 1	5
Research Skills in Ecology and Evolution 2	5

\* Students have to choose Option A or Option B.

## Appendix IV Course units in the post-propaedeutic phase

- **List of course units; Article 6.1.1**
- **Compulsory order of examinations; Article 8.2**

### 1. Major-specific requirements

The post-propaedeutic phase is composed of 90 ECTS major-specific course units (described below for each major), plus a minor programme of 30 ECTS.

#### 1.1. Major Biomedical Sciences

*Compulsory course units (50 ECTS)*

<b>Course unit name</b>	<b>ECTS</b>
Bachelor Thesis	5
Bioinformatics	5
Biology & Society: Ethical and Professional Aspects	5
Host-microbe Interactions	5
Immunology	5
Integrative Neuroscience <i>or</i> Medical Structural Biology	5
Modelling Life	5
Molecular genetics	5
Research Project Biomedical Sciences	10

*Elective course units (40 ECTS)*

<b>Course unit name</b>	<b>ECTS</b>
Big Data in Human Disease	5
Biology of Cancer	5
Bio-organic Chemistry	5
Cardiovascular Disease	5
Competences and Professionalization in Biology	5
Endocrinology	5
Epigenetics and Gene-editing	5
Evolutionary Medicine	5
Food and Metabolism	5
Hematopoietic Stem Cells, Differentiation and Development	5
Human Genetics and Genomics	5
Immunology and Disease	5
Integrative Neuroscience	5
Medical Cell Biology	5
Medical Physiology	5
Medical Structural Biology	5
Microbes and Infection	5
Molecular Research in Human Disease	5
Neurobiology of Ageing	5
Regenerative Medicine	5

## 1.2. Major Behaviour and Neurosciences

*Compulsory course units (50 ECTS)*

<b>Course unit name</b>	<b>ECTS</b>
Bachelor Thesis	5
Behavioural Biology	5
Biology & Society: Ethical and Professional Aspects	5
Chronobiology <i>or</i> Bioinformatics <i>or</i> Genes and Evolution	5
Genes and Behaviour <i>or</i> Immunology	5
Integrative Neuroscience	5
Modelling Life	5
Molecular Genetics	5
Research Project Behaviour & Neurosciences	10

*15 ECTS from the following course units*

<b>Course unit name</b>	<b>ECTS</b>
Biology of Human Behaviour	5
Evolutionary Medicine	5
Endocrinology	5
Neurobiology of Ageing	5
Psychobiology	5

*Elective course units (25 ECTS)*

<b>Course unit name</b>	<b>ECTS</b>
Big data in human disease	5
Bioinformatics	5
Biology of Human Behaviour	5
Biostatistics II	5
Competences and Professionalization in Biology	5
Chronobiology	5
Endocrinology	5
Epigenetics and gene editing	5
Evolution and Development	5
Evolutionary and ecological genomics	5
Evolutionary Medicine	5
Evolutionary Processes	5
Food and Metabolism	5
Genes and Behaviour	5
Genes and Evolution	5
Immunology	5
Integrative biology	5
Medical physiology	5
Microbes and infection	5
Microbiome	5
Neurobiology of Ageing	5
Psychobiology	5

### 1.3. Major Molecular Life Sciences

*Compulsory course units (75 ECTS)*

<b>Course unit name</b>	<b>ECTS</b>
Bachelor thesis	5
Bioinformatics	5
Biology & Society: Ethical and Professional Aspects	5
Bio-organic Chemistry	5
Cell Biology and Microscopy	5
Cell Migration and Communication	5
Enzymology and Thermodynamics	5
Host-microbe Interactions	5
Immunology	5
Integrative Neuroscience <i>or</i> Medical Structural Biology	5
Modelling Life	5
Molecular Genetics	5
Practical Carrousel	5
Research Project Molecular Life Sciences	10

*10 ECTS from the following course units*

<b>Course unit name</b>	<b>ECTS</b>
Bioanalytical Omics Techniques	5
Biotechnology	5
Programming for Life Sciences	5

*Elective course units (5 ECTS)*

<b>Course unit name</b>	<b>ECTS</b>
Big Data in Human Disease	5
Bioanalytical Omics Techniques	5
Biology of Cancer	5
Biotechnology	5
Competences and Professionalization in Biology	5
Endocrinology	5
Epigenetics and Gene-editing	5
Evolutionary Medicine	5
Food and Metabolism	5
Human Genetics and Genomics	5
Immunology and Disease	5
Medical Cell Biology	5
Programming for Life Sciences	5

#### 1.4. Major Ecology and Evolution

##### *Compulsory course units (55 ECTS)*

<b>Course unit name</b>	<b>ECTS</b>
Bachelor thesis	5
Behavioural Biology <i>or</i> C++ for Biologists	5
Biology & Society: Ethical and Professional Aspects	5
Biostatistics II	5
Genes and Behaviour <i>or</i> Conservation Biology	5
Genes and Evolution	5
Modelling Life	5
Research Project Ecology & Evolution 1 <i>or</i> Research Project Ecology & Evolution 2	10
Systems Ecology & Ecological Interactions 1	5
Systems Ecology & Ecological Interactions 2	5

##### *Elective course units (35 ECTS)*

<b>Course unit name</b>	<b>ECTS</b>
Behavioural Biology	5
Big Data Management in Ecology and Evolution	5
Biology of Human Behaviour	5
C++ for Biologists	5
Competences and Professionalization In Biology	5
Conservation Biology	5
Evolution and Development	5
Evolutionary and Ecological Genomics	5
Evolutionary Medicine	5
Evolutionary Processes	5
Genes & Behaviour	5
Integrative Biology	5
Marine Biology	5
Microbiome	5
Research Project Ecology & Evolution 1	10
Research Project Ecology & Evolution 2	10
Self-organisation	5



## 1.6. Integrative Biology

### Compulsory course units (75 ECTS)

Course unit name	ECTS
Bachelor thesis	5
<i>Biostatistics 2</i> <i>Biostatistics II is compulsory for IB students who want to follow a Research Project within the major EE in year 3.</i>	5
Behavioural Biology <b>or</b> Host-Microbe Interactions <b>or</b> C++ for Biologists	5
Biology & Society: Ethical and Professional Aspects	5
Chronobiology <b>or</b> Bioinformatics <b>or</b> Genes and Evolution	5
Evolution and Development	5
Evolutionary Medicine	5
Genes and Behaviour <b>or</b> Immunology <b>or</b> Conservation Biology	5
Integrative Biology	5
Integrative Neuroscience	5
Modelling Life	5
Molecular Genetics	5
Research project Integrative Biology 1	10
Research project Integrative Biology 2	10

### Elective course units (10 ECTS) – all IB students

Course unit name	ECTS
Biology of Human Behaviour	5
Biostatistics II	5
Competences and Professionalization in Biology	5
Marine Biology	5
Microbiome	5
Self Organisation	5

### Elective course units (5 ECTS) – Year 3, option A

Course unit name	ECTS
Big Data in Human Disease	5
Big Data Management in Ecology and Evolution	5
Biological Implant Evaluation	5
Endocrinology	5
Epigenetics & Gene-editing	5
Practical Carrousel	5

### Elective course units (5 ECTS) – Year 3, option B

Course unit name	ECTS
Medical Cell Biology	5
Immunology and Disease	5
Food and Metabolism	5
Cell Biology and Microscopy	5
Regenerative Medicine	5

## 2. Minors

### Minors in Life Sciences

The Bachelor's degree programme Biology offers its students two minors within Life Sciences.

- Minor Biomedical Life Sciences  
Accessible to students with a major EE.

Course unit name	ECTS
Bioinformatics <i>or</i> Chronobiology	5
Host-Microbe Interactions	5
Immunology	5
Integrative Neuroscience <i>or</i> Medical Structural Biology	5
Minor congress	5
Molecular Genetics	5

- Minor Ecology & Evolution  
Accessible to students with a major BMS, BN, MLS, IB<sup>1</sup>

Course unit name	ECTS
Behavioural Biology <i>or</i> C++ for Biologists	5
Genes & Behaviour <i>or</i> Conservation Biology	5
Genes & Evolution	5
Minor Congress	5
Systems Ecology & Ecological Interactions 1	5
Systems Ecology & Ecological Interactions 2	5

### University minor "Neurosciences"

The Bachelor's degree programme Biology is also responsible for the University minor "Neurosciences". This minor is not accessible to students from the Bachelor's degree programme Biology

Course unit name	ECTS
Neuroscience	15
Behavioural Neuroscience	15

## 3. Courses with one or several practical components

The course units listed in Appendix IV have a strong integration of practicals, lectures, and tutorials. Course units where the final assessment is not solely through a written exam are assessed through practicals. For further information, see OCASYS.

## 4. Compulsory order of examinations

All course units in the curriculum are accumulative and assume knowledge, insight and skills to have been obtained in previous courses. Any deficiencies should be repaired as soon as possible.

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<sup>1</sup> Whether the minor is accessible to students from the major IB depends on their choice of electives.

#### 4.1. Max. 15 ECTS per period

Students who have not completed the propaedeutic phase are not allowed to enroll for more than 15 ECTS in one period (e.g. period 1a) including re-examinations. Students who have not passed first-year courses need to prioritise these when enrolling for second-year courses.

#### 4.2. Systems Ecology & Ecological Interactions

Participation in the course "Systems Ecology & Ecological Interactions 1" is an entry requirement for participation in the course "Systems Ecology & Ecological Interactions 2". An exception is made for students for whom the old curriculum course "Systeemecologie" is compulsory in their major.

#### 4.3. Research Projects

All students need to have obtained the following entrance condition before being able to start a major-specific Research Project in year 3 of the bachelor's programme:

- 90 ECTS
  - o Including propaedeutic phase
  - o Excluding minor programme

##### *4.3.1. Students in the major Ecology & Evolution*

In order to start a Research Project, students in the major Ecology & Evolution need to have obtained a pass for the course Biostatistics 2.

##### *4.3.2. Students in the major Integrative Biology*

Students who want to follow a Research Project within the major Ecology & Evolution need to have obtained a pass for the course Biostatistics 2.

#### 4.4. University minor "Neuroscience"

Participation in the course Neuroscience is an entry requirement for participation in the course Behavioral Neuroscience. This entry requirement does not apply to students of Medicine and Human Movement Sciences.

**Appendix V Entry requirements  
(Article 2.1, article 2.2)**

**A. Deficient VWO-diploma**

1. The following requirements apply to the entrance examination as defined in Article 7.28.3 of the Act:

<b>Bacheloropleiding</b> <i>Bachelor's degree programme</i>	<b>N+T</b>	<b>N+G</b>	<b>E+M</b>	<b>C+M</b>
<b>Biologie</b> <i>Biology</i>	Biologie	Natuurkunde	Wiskunde A of B Natuurkunde Scheikunde Biologie	Wiskunde A of B Natuurkunde Scheikunde Biologie
<b>Farmacie</b> <i>Pharmacy</i>	V	Natuurkunde	Natuurkunde Scheikunde	Wiskunde A of B Natuurkunde Scheikunde
<b>Life Science and Technology</b>  <b>Scheikunde</b> <i>Chemistry</i> <b>Scheikundige Technologie</b> <i>Chemical Engineering</i>	V	Wiskunde B Natuurkunde	Wiskunde B Natuurkunde Scheikunde	Wiskunde B Natuurkunde Scheikunde
<b>Biomedische Technologie (in formation)</b> <i>Biomedical Engineering</i>	V	Wiskunde B Natuurkunde	Wiskunde B Natuurkunde	Wiskunde B Natuurkunde
<b>Informatica</b> <i>Computing Science</i> <b>Technische Bedrijfskunde</b> <i>Industrial Engineering and Management</i> <b>(Technische) Wiskunde</b> <i>(Applied) Mathematics</i>	V	Wiskunde B	Wiskunde B	Wiskunde B
<b>Kunstmatige Intelligentie</b> <i>Artificial Intelligence</i>	V	V	V	Wiskunde A of B
<b>(Technische) Natuurkunde</b> <i>(Applied) Physics</i> <b>Sterrenkunde</b> <i>Astronomy</i>	V	Wiskunde B Natuurkunde	Wiskunde B Natuurkunde	Wiskunde B Natuurkunde

2. The Admissions Board Bachelor's programmes FSE will determine whether deficiencies have been compensated satisfactorily.

## B. HBO (university of applied sciences) or academic propaedeutic certificate

- The following requirements apply to the entrance examination as defined in Article 7.28.3 of the Act:

<b>Bachelor's degree programme</b>	<b>Subjects at VWO (pre-university) level</b>
B Biology	wia or wib + na+sk+bio
B Pharmacy	wia or wib + na+sk
B Life Science and Technology	wib+na+sk
B Computing Science	wib
B Artificial Intelligence	wia or wib
B Physics	wib+na
B Chemistry	wib+na+sk
B Astronomy	wib+na
B Mathematics	wib
B Chemical Engineering	wib+na+sk
B Industrial Engineering and Management Science	wib
B Applied Physics	wib+na
B Applied Mathematics	wib

wia = Mathematics A; wib = Mathematics B; na = Physics; sk = Chemistry; bio = Biology

- In addition, candidates are required to be competent in English:

	<b>Overall</b>	<b>Reading</b>	<b>Listening</b>	<b>Speaking</b>	<b>Writing</b>
<b>IELTS (Academic)</b>	6.5	6.5	6.5	6.5	6.5
<b>TOEFL IBT (internet-based test)</b>	90	21 * (19-23)	21 * (20-23)	21 * (20-22)	24 (24-26)
<b>Cambridge English</b>	CAE or CPE Certificate with a minimum score of 180				
<b>English language test - UG Language Centre</b>		B2	B2	B2	C1

- The Admissions Board Bachelor programmes FSE will determine whether deficiencies have been compensated satisfactorily.

### C. Foreign qualifications (EEA)

1. Any certificate that grants access to a university in a European country will also grant access to Dutch universities.
2. In the entrance examination, as referred to in art. 7.28, paragraph 3 of the Act, per country and educational institution specific training conditions are mentioned. These are standardized. The entrance examination is, in accordance with the Admissions Board Bachelor's programmes FSE, carried out by the Admissions Office. If for a specific diploma no standardisation has taken place then the requirements as formulated for candidates with a HBO (university of applied science) propaedeutic certificate will apply to these candidates in the entrance examination as defined in Article 7.28.3 of the Act (see A).
3. In addition, candidates are required to be competent in English:

	<b>Overall</b>	<b>Reading</b>	<b>Listening</b>	<b>Speaking</b>	<b>Writing</b>
<b>IELTS (Academic)</b>	6.5	6.5	6.5	6.5	6.5
<b>TOEFL IBT (internet-based test)</b>	90	21 * (19-23)	21 * (20-23)	21 * (20-22)	24 (24-26)
<b>Cambridge English</b>	CAE or CPE Certificate with a minimum score of 180				
<b>English language test - UG Language Centre</b>		B2	B2	B2	C1

4. The Admissions Board Bachelor's programmes FSE will determine whether deficiencies have been compensated satisfactorily.

### D. Foreign qualifications (non-EEA)

1. A non-European certificate that according to NUFFIC and/or NARIC standards is equivalent to a Dutch VWO certificate will grant access to university in the Netherlands.
2. In the entrance examination, as referred to in art. 7.28, paragraph 3 of the Act, per country and educational institution specific training conditions are mentioned. These are standardized. The entrance examination is, in accordance with the Admissions Board Bachelor's programmes FSE, carried out by the Admissions Office. If for a specific diploma no standardisation has taken place then the requirements as formulated for candidates with a HBO (university of applied science) propaedeutic certificate will apply to these candidates in the entrance examination as defined in Article 7.28.3 of the Act (see A).

3. In addition, candidates are required to be competent in English:

	<b>Overall</b>	<b>Reading</b>	<b>Listening</b>	<b>Speaking</b>	<b>Writing</b>
<b>IELTS (Academic)</b>	6.5	6.5	6.5	6.5	6.5
<b>TOEFL IBT (internet-based test)</b>	90	21 * (19-23)	21 * (20-23)	21 * (20-22)	24 (24-26)
<b>Cambridge English</b>	CAE of CPE Certificate with a minimum score of 180				
<b>English language test - UG Language Centre</b>		B2	B2	B2	C1

4. The Admissions Board Bachelor's programmes FSE will determine whether deficiencies have been compensated satisfactorily.

### **E. Entrance examination (Colloquium Doctum)**

1. The following requirements apply to the entrance examination as defined in Article 7.29 of the Act:

<b>Degree programme</b>	<b>Nature and Health VWO level</b>	<b>or</b>	<b>Nature and Technology VWO level</b>
B Biology	en, wia or b, sk, bio, na		en, wib, na, sk, bio
B Pharmacy	en, wia or b, sk, bio, na		en, wib, na, sk
B Life Science and Technology	en, wib, sk, bio, na		en, wib, na, sk
B Computing Science	en, wib, sk, bio		en, wib, na, sk
B Artificial Intelligence	en, wia or b, sk, bio		en, wib, na, sk
B Physics	en, wib, sk, bio, na		en, wib, na, sk
B Chemistry	en, wib, sk, bio, na		en, wib, na, sk
B Astronomy	en, wib, sk, bio, na		en, wib, na, sk
B Mathematics	en, wib, sk, bio		en, wib, na, sk
B Chemical Engineering	en, wib, sk, bio, na		en, wib, na, sk
B Industrial Engineering and Management Science	en, wib, sk, bio		en, wib, na, sk
B Applied Physics	en, wib, sk, bio, na		en, wib, na, sk
B Applied Mathematics	en, wib, sk, bio		en, wib, na, sk

en = English; wia = Mathematics A; wib = Mathematics B; na = Physics; sk = Chemistry; bio = Biology

2. In addition, candidates are required to be competent in English:

	<b>Overall</b>	<b>Reading</b>	<b>Listening</b>	<b>Speaking</b>	<b>Writing</b>
<b>IELTS (Academic)</b>	6.5	6.5	6.5	6.5	6.5
<b>TOEFL IBT (internet-based test)</b>	90	21 * (19-23)	21 * (20-23)	21 * (20-22)	24 (24-26)
<b>Cambridge English</b>	CAE of CPE Certificate with a minimum score of 180				

<b>English language test - UG Language Centre</b>		B2	B2	B2	C1
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3. The Admissions Board Bachelor's programmes FSE will determine whether deficiencies have been compensated satisfactorily.



**Appendix VI Clustering of Bachelor's degree programmes**  
**Article 5.3.4, Article 5.6.1**

<b>Degree programme CROHO code</b>	<b>Name of degree programme</b>	<b>Clustered with CROHO code</b>	<b>Name of degree programme</b>
56286	B Life Science and Technology	56860 56157 56226	B Biology B Pharmacy B Biomedical Engineering (in formation)
56860	B Biology	56286 56157 56226	B Life Science and Technology B Pharmacy B Biomedical Engineering (in formation)
56157	B Pharmacy	56860 56286 56226	B Biology B Life Science and Technology B Biomedical Engineering (in formation)
56226	B Biomedical Engineering (in formation)	56860 56286 56157	B Biology B Life Science and Technology B Pharmacy
56980	B Mathematics	56965 50206 56962 50205	B Applied Mathematics B Physics B Applied Physics B Astronomy
56965	B Applied Mathematics	56980 50206 56962 50205	B Mathematics B Physics B Applied Physics B Astronomy
50206	B Physics	56962 50205 56965 56980	B Applied Physics B Astronomy B Applied Mathematics B Mathematics
56962	B Applied Physics	50206 50205 56965 56980	B Physics B Astronomy B Applied Mathematics B Mathematics
50205	B Astronomy	56962 56965 50206 56980	B Applied Physics B Applied Mathematics B Physics B Mathematics
56857	B Chemistry	56960	B Chemical Engineering

56960	B Chemical Engineering	56857	B Chemistry
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**Appendix VII Admission to the post-propaedeutic phase**  
**Article 5.1.1**

The following candidates will be admitted to the post-propaedeutic phase:

- Students who have been issued a positive study advice from the degree programmes Biology at the University of Groningen.

The Admission Board and the Board of Examiners decides over students from other degree programmes.

**Appendix VIII Contact hours propaedeutic phase**  
**Article 2.3**

<b>Degree programme year 1</b>	
<b>Structure contact hours</b>	<b>Contact hours per year (depends on chosen major)</b>
Lectures	250-290
Tutorials	130-170
Practicals	150-240
Supervision during an internship	10
Examinations	30-35
Career services	8

## **Appendix IX University Minors of the faculty of Science and Engineering (Article 8.5.1)**

1. Neurosciences Minor (taught in English)
  - Neuroscience (15 ECTS)
  - Behavioural Neuroscience (15 ECTS)

Future Planet Innovation (taught in English):

- Global Challenges (10 ECTS)
- Sustainability in perspective (5 ECTS)
- Sustainable contributions to society (15 ECTS)

Astronomy through Space and Time Minor (taught in English):

- The Evolving Universe (5 ECTS)
- Cosmic Origins (5 ECTS)
- Astrobiology (5 ECTS)

Einstein's physics: Space-time and parallel worlds (taught in English):

- Einstein's Universe (5 ECTS)
- Quantum World (5 ECTS)
- Building blocks of matter (5 ECTS)

2. The Programme Committee for the Bachelor's degree programme in Biology also has authority in the field of the Minor "Neurosciences" and/or its course units.

The Programme Committee for the Master's degree programme in Energy and Environmental Sciences also has authority in the field of the Minor "Future Planet Innovation" and/or its course units.

The Programme Committee for the Bachelor's degree programme in Astronomy also has authority in the field of the Minor "Astronomy through Space and Time" and/or its course units.

The Programme Committee for the Bachelor's degree programmes in Physics and Applied Physics also has authority in the field of the Minor "Einstein's physics: Space-time and parallel worlds" and/or its course units.

3. The Board of Examiners for the Bachelor's degree programmes in Biology and Life Science and Technology and the Master's degree programmes in Biology, Ecology and Evolution, Marine Biology and Molecular Biology and Biotechnology also has authority in the field of the Neurosciences Minor and/or its course units.

The Board of Examiners for the Master's degree programme in Energy and Environmental Sciences also has authority in the field of the "Future Planet Innovation" Minor and/or its course units.

The Board of Examiners for the Bachelor's degree programme in Astronomy also has authority in the field of the Astronomy through Space and Time Minor and/or its course units.

The Board of Examiners for the Bachelor's degree programmes in Physics and Applied Physics also has authority in the field of the Physics Minor "Einstein's physics: Space-time and parallel worlds" and/or its course units.

4. These Teaching and Examination Regulations also apply in their entirety to the Minors in Neurosciences, Future Planet Innovation, Astronomy through Space and Time and Einstein's physics: Space-time and parallel worlds and/or their course units.

**Appendix X Transitional arrangement:  
Transitional arrangement for the Bachelor degree programmes Biology and Life  
Science & Technology (cohort 2017 and earlier)**

**10.1. Course codes**

The Faculty of Science & Engineering uses new course codes for all courses as of academic year 2020-2021.

**10.2. Course units that change names in 2020-2021**

<b>Old name</b>	<b>New name</b>	<b>Course code</b>
Career Orientation	Competences and Professionalization in Biology	WBBY076-05
Molecular Biology	Cell Migration and Communication	WBBY072-05
Research Skills in Life Sciences	Research Skills in Life Sciences 1 Research Skills in Life Sciences 2 Research Skills in Life Sciences 3	WBBY066-02 WBBY067-03 WBBY068-05
Research Skills in Ecology and Evolution	Research Skills in Ecology and Evolution 1 Research Skills in Ecology and Evolution 2	WBBY064-05 WBBY065-05
Systems Ecology and Ecological Interactions	Systems Ecology and Ecological Interactions 1 Systems Ecology and Ecological Interactions 2	WBBY070-05 WBBY071-05

**10.3. Course units that will no longer be part of the new curriculum**

The course units in the column "old curriculum" will no longer be part of the new curriculum. These will be replaced by the course units in column "new curriculum".

The table can be found on the next pages.

Old curriculum	Year (old)	Code (old)	Period (old)	Level	New curriculum	Year (new)	Code (new)	Period (new)	Level.
Age research ERIBA	3	WBLS14005	2b1 + 2b2	3	Research Project BMS	3	WBBY902-10	2a or 2b	3
Anatomie & Histologie	2	WLB07012	1a	2	Anatomy and Histology	2	WBBE001-05	1a	2
Beeldvormende Technieken	2	WLB07050	2b2	3	Advanced Imaging Techniques	MSc	WMBY015-05	2b	3
Big data in Systems medicine	2	WBLS15001	2a3	3	Big Data in Human Disease (BMS/BN) or Big Data Management Ecology and Evolution (EE)	2	WBBY027-05 WBBY028-05	2a3	3
Biochemie	1	WLP10A03	1a	1	Biochemistry and Cell Biology in Ecology and Evolution	1	WBBY029-05	2a3	1
Biochemie & Biofysische chemie	2	WLB07017A	1b1	2	Spectroscopy	1 (Chemistry)	WBCH044-05	2b	2
Bioinformatica	2	WLP10B21	2b2	2	Bioinformatics	2	WBBY002-05	1a3	2
Biokatalyse & Membraanenzymologie research	3	WLB07044	2a1 + 2a2	3	Research Project MLS	3	WBBY904-10	2b	3
Biological Physics	1	WPLS18004	2b3	n/a	*Last chance exam Biological Physics or Biophysics	1 1 (LST)	WPLS18004 WBLT007-05	2b3 2a	n/a
Biologie van Kanker	2	WBLS13001	2a3	3	Biology of Cancer	2	WBBY030-05	2a2	3
Biologische Evaluatie van Implantaten	2	WLB07087	2a3	3	Biological Implant Evaluation	2	WBBE011-05	2a3	3
Biologische Fysica	1	WPLS18004	2b3	1	Biophysics	1 (LST)	WBLT007-05	2a	n/a
Biomaterialen 1	2	CHPBM105E	1b1 + 1b2	2	Biomaterials 1	2	WBEE007-05	1b1 + 1b2	2
Biomechanica	2	WLB07024	1a	2	Biomechanics	2	WBEE002-05	1a	2
Biomedisch Onderzoek	1	WLP10B20	2b	1	Research Skills in Life Sciences 1 (2 ECTS) Research Skills in Life Sciences 2 (3 ECTS) Research Skills in Life Sciences 3 (5 ECTS)	1 1 1	WBBY066-02 WBBY067-03 WBBY068-05	2b2+2b3	1
Biomedische Instrumentatie	3	WLB07091	1a2 + 1a3	3	Biomedical Instrumentation	3	WBEE003-05	1a2 + 1a3	3
Biomedische Onderzoek 1	1	WLP514001	2b	1	Research Skills in Life Sciences 1 (2 ECTS) Research Skills in Life Sciences 2 (3 ECTS)	1 1	WBBY066-02 WBBY067-03	2b2+2b3	1
Biomedische Onderzoek 2	1	WLP10B24	2b	1	Research Skills in Life Sciences 3 (5 ECTS)	1	WBBY068-05	2b2+2b3	1
Biomoleculaire chemie research	3	WLB07076	2a1 + 2a2	3	Research Project MLS	3	WBBY904-10	2b	3
Bio-organische Chemie	2	WLB0702	1a3	2	Bio-organic Chemistry	2	WBBY050-05	2b2	2
Biostatistiek N2	2	WLB07093	2a3	2	Biostatistics II	2	WBBY032-05	2a1	2
Biotechnologie	3	WLB07045	2a1 + 2a2	3	*Last chance exam Biotechnologie Old curriculum elective: choose <u>two</u> electives in the new curriculum	n/a	n/a	n/a	n/a
Cardiovasculair systeem	2	WBLS14001	2a3	3	Cardiovascular Disease	2	WBBY051-05	2b1	3
Celbiologie	1	WLP10A02	1a	1	Basic Molecular and Cell Biology	1	WBBY001-05	1a	1
Celfysiologie: Energie & Structuur	1	WLP10B18	2a	1	Metabolism	1	WBBY058-05	2b1	1
Chronobiologie	2	WLB07019	1b2	3	Chronobiology	2	WBBY003-05	1a3	3
Chronobiologie research	3	WLB07057	2a1 + 2a2	3	Research Project BN	3	WBBY903-10	2a or 2b	3
Community Ecology research	3	WLB07056	2b1 + 2b2	3	Research Project EE 1 or Research Project EE 2	3	WBBY905-10 WBBY906-10	2a 2b	3
Computer-aided Design (CAD)	1	WPLS18020	2b1	n/a	Individual assignment	1	WPLS18020	n/a	n/a
Conservation Biology	2	WLB07020	1b2	3	Conservation Biology	2	WBBY016-05	1b2	3
Dierecologie research	3	WLB07058	2b1 + 2b2	3	Research Project BN or Research Project EE 1 or Research Project EE 2	3	WBBY903-10 WBBY905-10 WBBY906-10	2a or 2b 2a 2b	3
Diversiteit & Evolutie	1	WLP10B26	2b	1	Individual assignment	n/a	n/a	n/a	1
Diversiteit, Ecologie & Gedrag	1	WLP10A06	1b	1	Individual assignment	n/a	n/a	n/a	1
Drug Disposition & Toxicology research	3	WBLS13002	2a1 + 2a2	3	Research Project BMS or Research Project BN or * Research Project MFW	3	WBBY902-10 WBBY903-10 * n/a	2a or 2b 2a or 2b * n/a	3
Ecological & Evolutionary Genomics research	3	WBLS14002	2a1 + 2a2	3	Research Project EE 1 or Research Project EE 2	3	WBBY905-10 WBBY906-10	2a 2b	3
Ecologie & Gedrag	1	WLP10B16	2a	1	Individual assignment	n/a	n/a	n/a	1
Ecologische Interacties	2	WLB0705	1a3	2	Systems Ecology & Ecological Interactions 2	2	WBBY071-05	1a2	2
Elektronica	3	WBLS13000	1b1	3	Electronics	3	WBEE009-05	1b1	3
Endocrinologie	2	WLB07032	2a1	3	Endocrinology	2	WBBY035-05	2a3	3
Evolutionaire Ecologie	2	WLB07016	1b1	3	Evolutionary Ecology	1	WBBY038-05	2a2	3
Farmacoepidemiologie	2	WLFB0804	2a3	3	Pharmacoepidemiology	2 (Pharm.)	WBFA028-05	2a3	3
Farmaceutische Analyse A	2	WPFA16004	2b1	2	Pharmaceutical Analysis A	1 (Pharm.)	WBFA035-05	2b1	2
Farmaceutische Microbiologie	2	WBFA16001	2a1	2	Pharmaceutical Microbiology	2 (Pharm.)	WBFA025-04	2a1	2
Farmaceutische Technologie en Biofarmacie	2	WLP1012	2a3	2	Pharmaceutical Technology and Biopharmacy 1	1 (Pharm.)	WBFA017-05	1b2	2
Farmacologie Practicum	2	WLFB0705	1b1	2	Pharmacology Practical	3 (Pharm.)	WBFA019-05	1a3+1b1	2
Farmakokinetiek	2	WBFA16003	2a1 or 2b1	3	Pharmacokinetics	2 (Pharm.)	WBFA018-05	1b1	3
Flora & Fauna	2	WLB07055	2b3	2	Research skills in Ecology & Evolution 2	1	WBBY065-05	2b3	2

Old curriculum	Year (old)	Code (old)	Period (old)	Level	New curriculum	Year (new)	Code (new)	Period (new)	Level.
Fysiologie & Therapie	1	WPLS13001	1b	1	Physiology & Pharmacology	1 (Pharm.)	WBFA020-05	1b3	1
Fysiologie Mens & Dier	1	WLP10B17	2a	1	Human Physiology	1 (Pharmacy)	WBFA022-03	2a	1
Fysiologische Ecologie research	3	WLB07039A	2a1 + 2a2	3	Research Project EE 1 <i>or</i> Research Project EE 2	3	WBBY905-10 WBBY906-10	2a 2b	3
Gedragbiologie	2	WLB0709	1a2	2	Behavioural Biology	2	WBBY013-05	1b1	2
Gedragbiologie research	3	WLB07069	2a1 + 2a2	3	Research Project BMS <i>or</i> Research Project BN <i>or</i> Research Project EE 1 <i>or</i> Research Project EE 2	3	WBBY902-10 WBBY903-10 WBBY905-10 WBBY906-10	2a <i>or</i> 2b 2a <i>or</i> 2b 2a 2b	3
Geneesmiddel Target tot Gebruik	1	WLP10B27	2a	1	Individual assignment	n/a	n/a	n/a	1
Genen en Evolutie	2	WLB0707	1a1	2	Genes & Evolution	2	WBBY004-05	1a3	2
Genes & Behaviour	2	WLB07010	1a3	2	Genes & Behaviour	2	WBBY018-05	1b2	2
Genetica	1	WLP10A04	1a	1	Genetics, Ecology and Evolution	1	WBBY005-05	1a	1
Genomics and Proteomics	2	WLB07041	2a3	3	<i>Old curriculum elective: choose an elective in the new curriculum</i>	n/a	n/a	n/a	n/a
Hematologie	2	WBL14003	2b1	3	Hematopoietic Stem Cells, Differentiation and Development	2	WBBY055-05	2b2	3
Hersenen & Gedrag	1	WLP10B13	2a	1	Behavioural Neurosciences	1	WBBY026-05	2a1	1
Humane Gedragbiologie	2	WLB07030	2a1	3	Biology of Human Behaviour	2	WBBY031-05	2a1	3
Humane Genetica & Genomics	2	WLB07048	2b3	3	Human Genetics & Genomics	2	WBBY042-05	2a2	3
Imaging technieken in de radiologie	3	WLB07092	2a2	3	Imaging Techniques in Radiology 1	3	WBBE012-05	2a2	3
Immunologie & Infectieziekten research	3	WLB07063	2a1 + 2a2	3	Research Project BMS <i>or</i> * Research Project MFW	3	WBBY902-10 * n/a	2a <i>or</i> 2b * n/a	3
Immunologie 2	2	WLB07025	2a2	3	Immunology and Disease	2	WBBY043-05	2a1	3
Immunologie I	2	WLB0701	1a2	2	Immunology	2	WBBY020-05	1b2	2
Infecties & Tumoren	2	WBFA16009	2a2	3	Infections and Tumours	3 (Pharm.)	WBFA023-05	2a2	3
Inleiding Biomathematica & Biostatistiek	1	WLP10B12	2b	1	Mathematics & Statistics	1 (Pharm.)	WBMA021-05	1b1	1
Integratieve Neurobiologie	2	WLB07015	1b1	2	Integrative Neuroscience	2	WBBY006-05	1a2	2
Mariene Biologie research	3	WLB07064	2b1 + 2b2	3	Research Project EE 1 <i>or</i> Research Project EE 2	3	WBBY905-10 WBBY906-10	2a 2b	3
Materiaalkunde	2	WLB07094	1a	2	Material Science	2	WBEE005-05	1a	2
Mathematics for Life Sciences	1	WPLS18012	2b2	n/a	<b>Last chance exam: Mathematics for Life Sciences <i>or</i></b> Calculus for LST <i>or</i> Calculus 1 (for IEM)	1 1 (LST) 1 (IEM)	WPLS18012 WBTL006-05 WBIE003-05	2b2 1b 1a	n/a
Medisch Farmaceutisch Onderzoek	1	WLP10B28	2b	1	Individual assignment	n/a	n/a	n/a	1
Medische Celbiologie	2	WLB07029	2b3	3	Medical Cell Biology	2	WBBY045-05	2a1	3
Medische Celbiologie research	3	WLB07075	2b1 + 2b2	3	Research Project BMS <i>or</i> Research Project BN <i>or</i> * Research Project MFW	3	WBBY902-10 WBBY903-10 * n/a	2a <i>or</i> 2b 2a <i>or</i> 2b * n/a	3
Medische Fysiologie	2	WLB07053	2b1	3	Medical Physiology	2	WBBY057-05	2b2	3
Medische Genetica	2	WLB07014	1b1	2	<i>Old curriculum elective: choose an elective in the new curriculum</i> BMS students: in order to meet the requirements of this major, follow Integrative Neuroscience which replaces Integratieve Neurobiologie.	n/a	n/a	n/a	n/a
Medische Genomics & Proteomics	2	WLB07090	2b2	3	<i>Old curriculum elective: choose an elective in the new curriculum</i>	n/a	n/a	n/a	n/a
Medische Implantaten	2	WLB07035	2a2	3	Medical Implants	2	WBEE013-05	2a2	3
Medische Microbiologie	2	WLB0703	1a1	2	Medical Microbiology	3	WBEE006-05	1a1	2
Medische Technologie & Maatschappij	2	WLB07054	2b2 + 2b3	2	Medical Technology and Society	2	WBEE020-05	2b2 + 2b3	2
Metabole Regulatie research	3	WBL14006	2b1 + 2b2	3	Research Project BMS	3	WBBY902-10	2a <i>or</i> 2b	3
Metabolisme & Toxicologie	2	WBFA16004	2a2 <i>or</i> 2b2	3	Metabolism and Toxicology	2 (Pharm.)	WBFA016-05	1b2 + 1b3	3
Metabolisme & Voeding	2	WLB07051	2a3	3	Food & Metabolism	2	WBBY041-05	2a1	3
Methodical Design 1	1	WPLS18014	2a1	n/a	Designing biomedical products 1	1 (BME)	t.b.a.	1a1	n/a
Microbiologie	2	WLB0704	1a2	2	Microbiology	1	WBBY022-05	1b	2
Microbiologie & Genetica research	3	WLB07046	2b1 + 2b2	3	Research Project MLS <i>or</i> Research Project EE 1 <i>or</i> Research Project EE 2	3	WBBY904-10 WBBY905-10 WBBY906-10	2b 2a 2b	3
Moleculaire & Cellulaire Microscopie	2	WLB07040	2a3	3	Cell Biology and Microscopy	2	WBBY034-05	2a1	3
Moleculaire Biologie & Medische Biologie	2	WLB07018	1b2	2	Epigenetics and Gene-editing	2	WBBY036-05	2a3	2
Moleculaire Celbiologie research	3	WLB07047	2b1 + 2b2	3	Research Project MLS	3	WBBY904-10	2b	3
Moleculaire Farmacologie research	3	WLB07065	2b1 + 2b2	3	Research Project BMS <i>or</i> Research Project BN <i>or</i> * Research Project MFW	3	WBBY902-10 WBBY903-10 * n/a	2a <i>or</i> 2b 2a <i>or</i> 2b * n/a	3



Old curriculum	Year (old)	Code (old)	Period (old)	Level	New curriculum	Year (new)	Code (new)	Period (new)	Level.
Moleculaire Genetica & Genomics	1	WLP10B14	2a	1	<i>Individual assignment</i>	n/a	n/a	n/a	1
Moleculaire Onderzoekstechnieken in Humane Ziektes	2	WLB07102	2a3	3	Molecular Research in Human Disease	2	WBBY061-05	2b1	3
Moleculen & Reactiviteit	1	WLP10B19	2a	1	Molecules of Life	1	WBBY047-05	2a2	1
Neurobiologie van Veroudering	2	WLB07098	2a2	3	Neurobiology of Ageing	2	WBBY062-05	2b1	3
Neurowetenschappen research	3	WLB07067	2b1 + 2b2	3	Research Project BMS <i>or</i> Research Project BN <i>or</i> Research Project EE 1 <i>or</i> Research Project EE 2	3	WBBY902-10 WBBY903-10 WBBY905-10 WBBY906-10	2a <i>or</i> 2b 2a <i>or</i> 2b 2a 2b	3
Numerieke Methoden	3	WINMTBK-09	2a3	3	Numerical Methods	3	WBMA037-05	2a3	3
Oncologie research	3	WLB07070	2b1 + 2b2	3	Research Project BMS	3	WBBY902-10	2a <i>or</i> 2b	3
Ontwerpen van biomedische producten 2	2	WLB07034	1b1 + 1b3	3	Designing biomedical products 2	2	WBBE008-05	1b1 + 1b2	3
Ontwerpen van biomedische producten 3	3	WLB07088A	1a2 + 1a3	3	Designing Biomedical Products 3	3	WBBE004-05	1a2 + 1a3	3
Ontwikkelingsbiologie en Regenerative Medicine research	3	WLB07066	2a1 + 2a2	3	Research Project BMS	3	WBBY902-10	2a <i>or</i> 2b	3
Pathofysiologie research	3	WLB07071	2b1 + 2b2	3	Research Project BMS <i>or</i> Research Project BN <i>or</i> <i>* Research Project MFW</i>	3	WBBY902-10 WBBY903-10 <i>* n/a</i>	2a <i>or</i> 2b 2a <i>or</i> 2b <i>* n/a</i>	3
Pathologie	1	WLP1014	2b	1	<i>Individual assignment</i>	n/a	n/a	n/a	1
Practicum Anatomie & Fysiologie	1	WPLS13002	1b	1	<i>Individual assignment</i>	n/a	n/a	n/a	1
Practicum chemie voor BMT	2	WBLS14004	2b1	3	Practicum chemie voor BMT	2	WBBE021-05	2b1	3
Practicum Chemie voor Levenswetenschappen	2	WLB07101	2a3 <i>or</i> 2b3	3	<i>Old curriculum elective: choose an elective in the new curriculum</i>	n/a	n/a	n/a	n/a
Practicum Minimale Cel	1	WLP10A01	1a	1	<i>Individual assignment</i>	n/a	n/a	n/a	1
Programmeren voor Levenswetenschappen	2	WLB07100	2b1	2	Programming for Life Sciences (major BME) <i>or</i> Programming for Life Sciences (major MLS)	2 3	WBBE022-05 WBBY075-05	2b1 1a3	2
Psychobiologie	2	WLB07049	2b3	3	Psychobiology	2	WBBY063-05	2b2	3
Receptorfarmacologie	2	WLF0703	1a1	2	Receptor Pharmacology	1 (Pharm.)	WBFA036-05	2b2	2
Regenerative Medicine	2	WLB07081	2a1	2	Regenerative Medicine	2	WBBE015-05	2a1	2
Research cursus BMT	3	WLB07095	2a	3	Research course BME	2	WBBE010-10	1b2 + 1b3	3
Signalen & Systemen	3	WBIE18005	2a1	3	Signals and Systems	3	WBIE030-05	2a1	3
Structural Biology	2	WLB07079	2b3	3	Medical structural biology	2	WBBY007-05	1a2	3
Structural Biology research	3	WLB07077	2b1 + 2b2	3	Research Project MLS	3	WBBY904-10	2b	3
Systeemecologie	2	WLB0706	1a2	2	Systems Ecology & Ecological Interactions 1	2	WBBY070-05	1a1	2
Thermo, Kinetiek & Enzymologie	2	WLB07011	1a1	2	Enzymology and Thermodynamics	2	WBBY053-05	2b1	2
Thermodynamica	2	WLF0706	1b3	2	Thermodynamics	2	WBFA021-05	1b3	2
Transport in Biologische Systemen	2	WLB07096	2b2 + 2b3	3	Transport in Biological Systems	2	WBBE023-05	2b2 + 2b3	3
Wetenschap, Ethiek, Technologie & Maatschappij	2	WLB07023	1b3	2	Biology & Society: Ethical and Professional Aspects	2	WBBY049-05	2b3	2
Zelforganisatie	2	WLB07103	2b3	3	Self-organisation	2	WBBY069-05	2b2	3
					<i>* Students who follow the old-curriculum major Medisch Farmaceutische Wetenschappen and still have to complete a research course / project will have to contact the academic advisors. These students will be provided with an individual assignment via the bachelor degree programme Pharmacy.</i>				
					1. Students can only enroll for <u>the last chance exam(s)</u> when they have already followed the lectures and practicals of the old curriculum course. 2. Students can only enroll for <u>the alternative course(s)</u> when they have <u>not</u> followed the lectures and practicals of the old curriculum course.				