



# **Teaching and Examination Regulations (TER)**

## **Faculty of Science**

### **Masterprogramme in Biomolecular Sciences**

**Academic year: 2019-2020**

A: Faculty section

B1: Programme specific section – general provisions

B2: Programme specific section – content of programme

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## Section A: Faculty Section

### 1. General provisions

#### Article 1.1 Applicability of the Regulations

<p>1. These Regulations apply to anyone enrolled for the programme, irrespective of the academic year in which the student was first enrolled for the programme. These Regulations apply to the teaching and examinations for the following Master's degree programmes:</p> <ul style="list-style-type: none"> <li>▪ Artificial Intelligence</li> <li>▪ Bioinformatics and System Biology</li> <li>▪ Biomedical Sciences</li> <li>▪ Biomolecular Sciences</li> <li>▪ Business Analytics</li> <li>▪ Computer Science</li> <li>▪ Drug Discovery and Safety</li> <li>▪ Earth Sciences</li> <li>▪ Ecology</li> <li>▪ Environment and Resource Management</li> <li>▪ Global Health (research)</li> <li>▪ Health Sciences</li> <li>▪ Hydrology</li> <li>▪ Information Sciences</li> <li>▪ Management, Policy Analysis and Entrepreneurship in the Health and Life Sciences</li> <li>▪ Mathematics</li> <li>▪ Medical Natural Sciences</li> <li>▪ Neurosciences (research)</li> <li>▪ Parallel and Distributed Computer Systems</li> <li>▪ Science Business and Innovation</li> <li>▪ Stochastics and Financial Mathematics</li> </ul>	<p>Advice OLC, approval FGV (9.38 ub b)</p>
<p>2. These Regulations enter into force with effect from 1 September 2019.</p>	<p>Advice OLC, approval FGV (9.38 ub b)</p>
<p>3. An amendment to the Teaching and Examination Regulations is only permitted to concern an academic year already in progress if this does not demonstrably damage the interests of students.</p>	<p>Advice OLC, approval FGV (9.38 sub b)</p>

#### Article 1.2 Definitions

The following definitions are used in these Regulations (*in alphabetical order*):

- a. academic year: the period beginning on 1 September and ending on 31 August of the following calendar year;
- b. CvB: the Executive Board of Vrije Universiteit Amsterdam.
- c. Double degree programme: joint programme in the context of cooperation between Vrije Unviersiteit Amsterdam and the educational institution within and outside the EU, as to gain a double university degree; of the VU and the educational institution concerned; though not being the same as a 'joint degree programme' according to the art. 7.3c WHW';
- d. EC (European Credit): an EC credit with a workload of 28 hours of study;
- e. educational component: a unit of study of the programme within the meaning of the WHW;
- f. examination: the final examination of the Master's programme;
- g. exemption: Exemption from an examination/ practical/ fieldwork based on an earlier successfully completed examination, or knowledge / skills of a similar content, level and scope gained outside higher education;
- h. FGV: Faculty joint assembly – assembly of the faculty student council and faculty staff

	council;
i. interim examination:	an assessment of the student's knowledge, understanding and skills relating to a course component. The assessment is expressed in terms of a final mark. An interim examination may consist of one or more partial examinations. A resit always covers the same material as the original interim examination;
j. joint degree:	a degree awarded by an institution together with one or more institutions in the Netherlands or abroad, after the student has completed a study programme (a degree programme, a major or a specific curriculum within a degree programme) for which the collaborating institutions are jointly responsible;
k. OLC:	programme committee;
l. period:	a part of a semester;
m. practical exercise:	the participation in a practical training or other educational learning activity, aimed at acquiring certain (academic) skills. Examples of practical exercises are: <ul style="list-style-type: none"> <li>o researching and writing a thesis or dissertation</li> <li>o carrying out a research assignment</li> <li>o taking part in fieldwork or an excursion</li> <li>o taking part in another educational learning activity aimed at acquiring specific skills, or</li> <li>o participating in and completing a work placement;</li> </ul>
n. premaster student	those who enroll in a premaster programme;
o. Programme:	the totality and cohesion of the course components, teaching activities/methods, contact hours, testing and examination methods and recommended literature;
p. SAP/SLM:	the student information system ( <i>Student Lifecycle Management</i> );
q. semester:	the first (September - January) or second half (February - August) of an academic year;
r. study guide:	the guide for the study programme that provides further details of the courses, provisions and other information specific to that programme. The Study Guide is available electronically at: <a href="https://www.vu.nl/studiegids">https://www.vu.nl/studiegids</a>
s. subject	see 'educational component';
t. substituting course/educational component	see under d (double degree programme). A course obtained at the educational institute, within the context of cooperation, that is mentioned in the diploma supplement as such; not being an 'exemption'.
u. thesis/ internship work placement	a component comprising research into the literature and/or contributing to scientific research, always resulting in a written report;
v. university:	Vrije Universiteit Amsterdam;
w. WHW:	the Dutch Higher Education and Research Act ( <i>Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek</i> );
x. workload:	the workload of the unit of study to which an interim examination applies, expressed in terms of credits = EC credits (ECTS = European Credit and Transfer Accumulation System). The workload for 1 year (1,680 hours) is 60 EC credits.

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

## 2. Study programme structure

### Article 2.1 Structure of academic year and educational components

1. The study programme will be offered in a year divided into two semesters.	Ordinance CvB, see appendix 3
2. Every semester consists of three consecutive periods of eight, eight and four weeks.	Ordinance CvB, see appendix 3
3. An educational component comprises 6 EC or a multiple thereof.	Ordinance CvB,

	see appendix 3
4. By way of exception to paragraph 3, Section B may stipulate that a unit of study comprises 3 EC or a multiple thereof. The Faculty Board requests permission from the Executive Board.	Ordinance CvB, see appendix 3

#### Article 2.2 Refusal or termination of registration / (iudicium abeundi)

1. Pursuant to the provisions of Article 7.42a of the Act, the Faculty Board or the Examination Board may, in exceptional circumstances, request the Executive Board to terminate or refuse a student's registration on a programme. This may be the case if the student's conduct or statements demonstrate his or her unsuitability to work in the relevant field or discipline, or to take part in the programme's practical training component.	WHW
2. If a student is suspected of being unsuitable as described in paragraph 1, the Examination Board or the Faculty Board will examine the case, and the student will be informed of this immediately. The Examination Board or the Faculty Board will only issue a recommendation after careful consideration of the interests involved and following a hearing with the student concerned.	WHW

### 3. Assessment and Examination

#### Article 3.1 Signing up for education and interim examinations

1. Every student must sign up to participate in the educational components of the programme, the examinations and resits. The procedure for signing up is described in an annex to the Student Charter.	Ordinance CvB, see appendix 3
2. Signing up may only take place in the designated periods.	Ordinance CvB, see appendix 3
3. If a student does not pass the examination and the resit of a component, he/ she is obliged to take the whole component again. This rule does not apply to practical exercises and programmes that make use of component marks that retain their validity. For further regulations see Section B of the programme involved.	Advice OLC, approval FGV (7.13 x)

#### Article 3.2 Type of examination

1. At the student's request, the Examination Board may permit a different form of interim examination than that stipulated in the course catalogue. If applicable, more detailed regulations on this are included in the Rules and Guidelines for the Examination Board.	Advice OLC, Approval FGV (7.13 l)
2. In an educational component is no longer offered in the academic year following its termination, at least one opportunity will be provided to sit the interim examination(s) or parts thereof and a transitional arrangement will be included in the programme-specific section for the subsequent period.	Advice OLC, approval FGV (7.13 j)

#### Article 3.3 Oral interim examinations

1. An oral assessment is public unless the Examinations Board on request determines otherwise.	Advice OLC; approval FGV (7.13 l and n)
2. An oral examination will be taken in the presence of a second examiner.	Advice OLC, approval FGV (art. 9.38 par. b)

#### Article 3.4 Determining and announcing results

1. The examiner determines the result of a written interim examination as soon as possible, but at the latest within fifteen working days. By way of departure from that stipulated in the first clause, the marking deadline for theses, internships / work placements and final assignments is no longer than twenty working days. The examiner will then immediately ensure that the marks are registered and also ensures that the student is immediately notified of the mark, taking due account of the applicable confidentiality standards.	Ordinance CvB, see appendix 3
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2. a. The examiner determines the result (i.e. mark) of an oral examination as soon as possible, though within one working day, after the examination has finished and informs the student accordingly. The third clause of the first paragraph applies. b. The examiner determines the result of an interim examination no later than five working days before the next (interim) examination will be held.	Advice OLC; approval FGV (7.13 o)
3. In the case of alternative forms of oral or written examinations, the Examination Board determines in advance how and by what deadline the student will be informed of the results.	Advice OLC; approval FGV (7.13 o)
4. A student can submit a request for reassessment to the examiner. A request for reassessment does not affect the time period for lodging an appeal.	Advice OLC; approval FGV (9.38 sub b)
5. Together with the result of an examination, the student's attention will also be drawn to their right to inspect the assessed work and have a post-examination discussion as stipulated in Art. 3.9, as well as his/her option to lodge a complaint before the Examination Board, and if necessary, to appeal to the Examinations Appeals Board (in Dutch: COBEX).	

### Article 3.5 Examination opportunities

1. a. Per academic year, two opportunities to take examinations per educational component will be offered. b. The options for retaking practical components, work placements and theses are detailed in the relevant work placement manual, teaching regulations or graduation regulations.	Ordinance CvB, see appendix 3
2. The most recent mark will apply in the event of a resit. A retake is allowed for both passed and failed units of study.	Ordinance CvB, see appendix 3
3. The resit for a (partial) interim examination must not take place within ten working days of the announcement of the result of the (partial) examination being resat.	Advice OLC; approval FGV (7.13 j)
4. The Examination Board may allow a student an extra opportunity to sit an examination if that student: a) is lacking only those credits to qualify for his or her degree; b) has failed the examination during all the previously offered attempts, unless participation in an examination was not possible for compelling reasons. The extra opportunity can only be offered if it concerns a written examination, a paper or a take home examination. This provision excludes the practical assignments and the Master's thesis. Requests for an additional examination opportunity must be submitted to the Examination Board no later than 15 July. If necessary, the method of examination may deviate from the provisions in the study guide.	Ordinance CvB, see appendix 3

### Article 3.6 Marks

1. Marks are given on a scale from 1 to 10 with no more than one decimal point.	Ordinance CvB, see appendix 3															
2. The final marks are given in whole or half points.	Ordinance CvB, see appendix 3															
3. Final marks between 5 and 6 will be rounded off to whole marks: up to 5.5 rounded down; from 5.5 rounded up. To pass a course, a 6 or higher is required. In case the examination of a component consists of two or more parts, each of which are graded separately, the (weighted) mean of these marks (meaning: the final mark) must be rounded off using the following table:	Ordinance CvB, see appendix 3															
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>From</th> <th>Up to</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td>1,00</td> <td>1,25</td> <td>1</td> </tr> <tr> <td>1,25</td> <td>1,75</td> <td>1,5</td> </tr> <tr> <td>1,75</td> <td>2,25</td> <td>2,0</td> </tr> <tr> <td>2,25</td> <td>2,75</td> <td>2,5</td> </tr> </tbody> </table>		From	Up to	Grade	1,00	1,25	1	1,25	1,75	1,5	1,75	2,25	2,0	2,25	2,75	2,5
From	Up to	Grade														
1,00	1,25	1														
1,25	1,75	1,5														
1,75	2,25	2,0														
2,25	2,75	2,5														

	2,75	3,25	3,0		
	3,25	3,75	3,5		
	3,75	4,25	4,0		
	4,25	4,75	4,5		
	4,75	5,50	5,0		
	5,50	6,25	6,0		
	6,25	6,75	6,5		
	6,75	7,25	7,0		
	7,25	7,75	7,5		
	7,75	8,25	8,0		
	8,25	8,75	8,5		
	8,75	9,25	9,0		
	9,25	9,75	9,5		
	9,75	10,0	10		
4. The Examination Board can allow to use symbols rather than numbers, such as: pass, fail, (un)satisfactory, good, VRS (exemption). In case a student does not take part in any (interim) examination, the examiner will register the mark 'ns' (c.q. no show).					Ordinance CvB, see appendix 3

#### Article 3.7 Exemption

1. At the written request of the student, the Examination Board may exempt the student from taking one or more examination components, if the student: <ol style="list-style-type: none"> <li>has passed a course component of a university or higher professional education programme that is equivalent in terms of content and level;</li> <li>has demonstrated through his/her work and/or professional experience that he/she has sufficient knowledge and skills with regard to the relevant course component.</li> </ol> The Examination Board will make a decision within six weeks after receiving the request.	Advice OLC; approval FGV (7.13 r)
2. The Master's thesis, the final work placement (c.q. internship) and the final project (c.q. final paper) are excluded from this exemption possibility.	Advice OLC; approval FGV (9.38 sub b)
3. A maximum of 18 EC for a one one-year master programme and 36 EC for a one two-year master programme can be accumulated through granted exemption. The substituting courses (educational components) are not included.	Advice OLC; approval FGV (art. 7.13 par. 2, under r WHW jo art. 9.38 par. b)

#### Article 3.8 Validity period for results

1. The validity period of interim examinations passed and exemption from interim examinations is unlimited, unless otherwise specified in Section B.	WHW
2. The validity period of a partial examination is limited to the academic year in which it was sat or until the end of the unit of study concerned, as stipulated for the relevant unit of study in Section B.	Advice OLC; approval FGV (9.38 sub b)

#### Article 3.9 Right of inspection and post-examination discussion

1. For twenty working days after the announcement of the results of a written interim examination, the student can, on request, inspect his or her assessed work, the questions and assignments set in it, as well as the standards applied for marking. The place and time referred to in the previous clause will be announced at the time of the interim examination on VUnet or Canvas.	Advice OLC; approval FGV (7.13 p en q)
2. If a collective post-examination discussion has been organized, individual post-examination discussions will be held only if the student has attended the collective	Advice OLC; approval FGV (7.13 q)



discussion or if the student was unable to attend the collective discussion through no fault of his or her own.	
3. Students who meet the requirements stipulated in paragraph 1 can submit a request for an individual post-examination discussion to the relevant examiner. The discussion shall take place at a time and location to be determined by the examiner.	Advice OLC; approval FGV (7.13 p en q)

#### Article 3.10 Fraud and plagiarism

1. The provisions of the Rules and Guidelines for the Examination Board apply in full.	Ordinance CvB
2. Electronic detection software programmes may be used to detect plagiarism in texts. In submitting a text, the student implicitly consents to the text being saved in the database of the detection programme concerned.	Ordinance CvB

### 4. Academic student counselling and study progress

#### Article 4.1 Administration of study progress and academic student counselling

1. The faculty board is responsible for the correct registration of the students' study results. After the assessment of an educational component has been registered, every student has the right to inspect the result for that component and also has a list of the results achieved at his or her disposal in VUnet.	Advice OLC; approval FGV (7.13 u)
2. Enrolled students are eligible for academic student counselling. Academic student counselling is in any case provided by: <ol style="list-style-type: none"> <li>a. The Student General Counselling Service</li> <li>b. Student psychologists</li> <li>c. Faculty academic advisors</li> </ol>	Advice OLC; approval FGV (7.13 u)

#### Article 4.2 Adaptations for students with a disability

1. A student with a disability can, at the moment of submission to VUnet, or at a later instance, submit a request to qualify for special adaptations with regard to teaching, practical training and interim examinations. These adaptations will accommodate the student's individual disability as much as possible, but may not alter the quality or degree of difficulty of a unit of study or an examination. In all cases, the student must fulfil the exit qualifications for the study programme.	Advice OLC; approval FGV (7.13 m)
2. The request referred to in the first paragraph must be accompanied by a statement from a doctor or psychologist. If possible, an estimate should be given of the potential impact on the student's study progress. In case of a chronic disability a single (one time) request suffices.	Advice OLC; approval FGV (7.13 m)
3. Students who have been diagnosed with dyslexia must provide a statement from a BIG, NIP or NVO registered professional who is qualified to conduct psychological evaluation.	Advice OLC; approval FGV (7.13 m)
4. The faculty board, or on behalf of the faculty board, the educational director, or the programme director, decides on the adaptations concerning the teaching facilities and logistics. The Examination Board will rule on requests for adaptations with regard to examinations.	Advice OLC; approval FGV (7.13 m)
5. In the event of a positive decision in response to a request as referred to in paragraph 1, the student will make an appointment with the study adviser to discuss the details of the provisions.	Advice OLC; approval FGV (7.13 m)
6. A request for adaptations will be refused if it would place a disproportionate burden on the organization or the resources of the faculty or university were it upheld.	Advice OLC; approval FGV (7.13 m)
7. If the disability justifies an extension of the interim examination time, the Examination Board will grant permission testifying to this entitlement to an extension. If a disability justifies other measures to be taken, the Examination Board will advise the Faculty Board on the necessary measures to be taken.	Advice OLC; approval FGV (7.13 m)
8. The decision as referred to in paragraph 7, is valid for a maximum period of one year with the exception for the chronic diseases and disabilities.	Advice OLC; approval FGV (7.13 m)

## 5. Hardship clause

### Article 5.1 Hardship clause

In instances not regulated by the Teaching and Examination Regulations or in the event of demonstrable extreme unreasonableness and unfairness, the faculty board responsible for the study programme will decide, unless the matter concerned is the responsibility of the Examinations Board.	Advice OLC; approval FGV (9.38 sub b)
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### Article 5.2. Publication

1. The faculty board will ensure the appropriate publication of these Regulations and any amendments to them.	WHW
2. The Teaching and Examination Regulations will be posted in the study guide or on VUnet.	WHW

Approved by authorized representative advisory body FGOV of the Faculty of Science on 3 September 2019.

Adopted by the Faculty Board on 30 August 2019.

## Section B1: Programme specific – general provisions

### 6. General programme information and characteristics

#### Article 6.1 Study programme information

1. The programme Biomolecular Sciences CROHO number 60616 is offered on a full-time basis.	Advice OLC; approval FGV (7.13 i)
2. The language of instruction is English	Advice OLC; approval FGV (9.38 b)

#### Article 6.1a Deviant size of educational component

By way of derogation from art. 2.1, par. 3, the units listed below have a deviant size.		
<b>Course code</b>	<b>Educational component</b>	<b>EC</b>
AM_1156	Scientific Writing in English (AM_BMOL)	3
AM_1246	Professionalism in Biomolecular Science	3
AM_1021	Microbial Genomics	3
X_432542	Biomolecular Screening	3
AM_471153	Thesis Based on Literature Study	9
XB_432764	Caput AIMMS Lectures and Seminars	3

#### Article 6.2 Teaching formats used and modes of assessment

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

#### Article 6.3 Academic student counselling

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

#### Article 7.1 Intake date(s)

1. The programme starts on September 1.	Advice OLC; approval FGV (9.38 b)
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#### Article 7.2 Admission requirements

1. Admission to the Master's programme is possible for an applicant who has obtained a Bachelor's degree obtained at an institution of academic higher education, and who demonstrates the following: a. Knowledge and understanding of: - Biochemistry; - Molecular Genetics; - Molecular Biology; - Cell Biology.	Partly legal provision & ordinance CvB, see appendix 3. Admission requirements excepted from participation in WHW
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<p>b. Practical laboratory and research skills</p> <ul style="list-style-type: none"> <li>- basic laboratory techniques and methods obtained in practicals and courses</li> <li>- preferably a bachelor research internship on a subject related to the topics mentioned under a.</li> </ul>	
<p>2. The Admission Board will investigate whether the applicant meets the admission requirements.</p>	Legal provision
<p>3. In addition to the requirements referred to in the first paragraph, the Admission Board can also assess requests for admission in terms of the following criteria:</p> <ol style="list-style-type: none"> <li>a. talent and motivation;</li> <li>b. academic attitude and critical thinking;</li> </ol>	Partly legal provision & ordinance CvB, see appendix 3. Admission requirements excepted from participation in WHW
<p>4. Additional admission issues:</p> <ol style="list-style-type: none"> <li>a. Applicants holding a BSc degree from a Dutch university in the Biomedical Sciences, Life and Health Sciences (major Biomedical Sciences), Biology, Medical Natural Sciences, Pharmaceutical Sciences, Molecular Life Sciences, (Bio)Chemistry or a related study, can enroll in the Master's programme. In all of the above cases, students should also meet the following criteria: <ul style="list-style-type: none"> <li>- An average Bachelor grade of 7.0 or higher;</li> <li>- A Bachelor internship in a relevant field (Biochemistry/ Molecular Cell Biology) with a minimum grade of 7.5.</li> </ul> </li> <li>b. Applicants holding a university BSc degree in a field not mentioned above, holding a degree from another institute of higher education in the Netherlands, and applicants with a BSc degree from a university abroad should meet the following criteria: <ul style="list-style-type: none"> <li>- A minimum of 24 EC coursework in Biochemistry/Molecular Cell Biology at the 300 level (last year of Bachelor).</li> <li>- An average Bachelor grade of at least 7.0 out of 10, or equivalent (GPA of at least 3.0 out of 4.0, second-class upper division or higher).</li> <li>- Bachelor internship in a relevant field (Biochemistry/ Molecular Cell Biology) with a minimum grade of 7.5 out of 10 or equivalent in other grading systems. If a final grade is not yet available, an interim evaluation by the internship supervision will be considered.</li> <li>- Experience with practical laboratory techniques gained in coursework and the Bachelor internship.</li> <li>- Academic competence suitable for commencing a Master's program and motivation for a career in research, which will be evaluated during an interview (either in person or online).</li> <li>- The Admission Board may set additional requirements if necessary, for example, Bachelor courses from the VU Minor Biomolecular Sciences.</li> </ul> </li> <li>c. HBO/HLO students: <ul style="list-style-type: none"> <li>- Some <a href="#">HBO/HLO specializations</a>, for example, the research specializations Biochemistry, Molecular Biology, Cell Biology or Biotechnology, provide adequate preparation for the Biomolecular Sciences master's programme. The Admission Board will decide about admission on the basis of the above criteria.</li> </ul> </li> </ol>	

#### Article 7.3 Pre-Master's programme

<p>1. a) Students with a Bachelor's degree of a university of applied science (HBO) in a field that corresponds to a sufficient extent with the subject area covered by the</p>	Advice OLC; approval FGV (9.38 sub b)
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<p>Master's programme can request admission to the pre-Master's programme.</p> <p>b) Students with a Bachelor's degree from an institution of academic higher education in a field that does not sufficiently corresponds with the subject area covered by the Master's programme can request admission to the pre-Master's programme.</p>	
2. The pre-Master's programme comprises 30 EC and is made up of units of study: The Biomolecular Sciences track of the Minor Biomolecular and Neurosciences.	Advice OLC; approval FGV (9.38 sub b)
4. A successfully completed pre-Master's programme serves as proof of admission to the specified Master's programme in the subsequent academic year.	Legal provision
5. A candidate can only participate in one pre-Master's programme at the Vrije Universiteit.	Ordinance CvB, see appendix 3

## 8. Interim examinations and results

### Article 8.1 Sequence of interim examinations

<p>1. Students may participate in interim examinations [or practical exercises] of the components below only if they have passed the interim examination or examinations for the components mentioned hereinafter:</p> <p>a. Students may start their first internship only if they attended the compulsory course(s) of the specialization and have acquired 18EC of the specialization specific courses.</p> <p>b. Students may participate in the second internship after passing the first internship.</p>	Advice OLC; approval FGV (7.13 h, s & t)
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### Article 8.2 Validity period for results

If the exam shows that a student's knowledge is insufficient or outdated, or if the student's skills evaluated in the exam are demonstrably outdated, the Examination Board may impose a supplementary or replacement examination for a course for which an examination was passed more than 6 years ago.	Advice OLC; approval FGV (7.13 k)
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### Article 8.3 Maximum Exemption(s)

A maximum of 36 EC of the curriculum can be accumulated through granted exemptions, based on previous results within other master's programmes.	Advice OLC, approval FGV (7.13 par. 2, under r jo art. 9.38 sub b)
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### Art. 8.3. Degree

Degree Students who have successfully completed their Master's final Examination are awarded a Master of Science degree (MSc). The degree awarded is stated on the diploma.	Legal provision WHW
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## Section B2: Programme specific – content of programme

### 9. Programme objectives, specializations and exit qualifications

#### Article 9.1 Workload

1. The programme has a workload of 120 EC.	Advice OLC; (7.13 a)
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#### Article 9.2 Specializations

<p>The programme has the following specializations:</p> <ol style="list-style-type: none"> <li>1. Molecular Cell Biology;</li> <li>2. Biological Chemistry;</li> <li>3. Molecular Bioinformatics.</li> </ol>	Advice OLC; (7.13 a)																														
<table border="1"> <thead> <tr> <th colspan="2"><i>Programme composition of specializations 1 and 2</i></th> </tr> <tr> <th><i>Educational component</i></th> <th><b>EC</b></th> </tr> </thead> <tbody> <tr> <td>- Research Internship I *</td> <td>24-30</td> </tr> <tr> <td>- Research Internship II *</td> <td>30-36</td> </tr> <tr> <td>- Thesis based on literature study</td> <td>9</td> </tr> <tr> <td>- General compulsory courses (AM_1161B, AM_1246)</td> <td>6</td> </tr> <tr> <td>- Compulsory and elective* specialization-specific courses</td> <td>30</td> </tr> <tr> <td>- Elective courses</td> <td>15</td> </tr> </tbody> </table> <p>*depending on the specialization. To qualify for a specialization, one Research Internship and 12 EC of courses in the context of the specialization are compulsory. Both internships should equal at least 60 EC, with a maximum of 66 EC.</p> <table border="1"> <thead> <tr> <th colspan="2"><i>Programme composition of specialization 3</i></th> </tr> <tr> <th><i>Educational component</i></th> <th><b>EC</b></th> </tr> </thead> <tbody> <tr> <td>- Research Internship</td> <td>30-36</td> </tr> <tr> <td>- Bioinformatics project</td> <td>24</td> </tr> <tr> <td>- General compulsory courses (AM_1161B, AM_1246)</td> <td>6</td> </tr> <tr> <td>- Compulsory and elective specialization-specific courses</td> <td>42</td> </tr> <tr> <td>- Elective courses</td> <td>18</td> </tr> </tbody> </table> <p>To qualify for the specialization, one Research Internship and 42 EC of courses in the context of the specialization are compulsory.</p>	<i>Programme composition of specializations 1 and 2</i>		<i>Educational component</i>	<b>EC</b>	- Research Internship I *	24-30	- Research Internship II *	30-36	- Thesis based on literature study	9	- General compulsory courses (AM_1161B, AM_1246)	6	- Compulsory and elective* specialization-specific courses	30	- Elective courses	15	<i>Programme composition of specialization 3</i>		<i>Educational component</i>	<b>EC</b>	- Research Internship	30-36	- Bioinformatics project	24	- General compulsory courses (AM_1161B, AM_1246)	6	- Compulsory and elective specialization-specific courses	42	- Elective courses	18	
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- Elective courses	18																														

#### Article 9.3 Programme objective

<p>The programme aims to prepare students for a scientific career within the international Life Sciences research community. The graduate is expected to be able to successfully commence PhD training. To this end, a graduate of the MSc programme Biomolecular Sciences possesses an academic attitude, and academic as well as practical skills. The programme aims to strengthen and deepen domain-specific knowledge acquired in BSc programs. Graduates should thoroughly understand the scientific process at large and in particular dispose of the necessary research-specific skills. The goal is to provide students with a broad and interdisciplinary knowledge of various approaches and techniques. In addition, we aim to teach them the skills and attitudes necessary for gaining insights into the societal impact of this kind of research, within a society that is facing an ever-increasing threat by multifactorial as well as infectious diseases, invoking an ever-increasing demand for the unravelling of processes in healthy and malfunctioning cells</p>	Advice OLC; (7.13 a)
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**Article 9.4 Exit qualifications**

<p>1. At all events, a graduate of the study programme will have:</p> <p>A. Knowledge and understanding</p> <ul style="list-style-type: none"> <li>• has knowledge of the terminology, current theories, and research topics in the biomolecular sciences disciplines, such as molecular biology, biochemistry, cell biology, bioinformatics, and biophysics;</li> </ul> <p>B. Applying knowledge and understanding</p> <ul style="list-style-type: none"> <li>• can use the principles from the different disciplines in the design of research projects, the execution of research, and the analysis of results;</li> <li>• has command of the relevant research techniques, laboratory procedures, including safety measures, and the application of computer software relevant to the field; and the ability to solve emerging problems;</li> <li>• can collaborate with researchers from the same and other disciplines and can think interdisciplinary;</li> </ul> <p>C. Making judgements</p> <ul style="list-style-type: none"> <li>• is familiar with the general and specific scientific literature and knows how to analyze, summarize and critically evaluate this information;</li> <li>• can independently and critically evaluate the planning and execution of research, interpret results; thereby, contributing to scientific discussions;</li> <li>• can reflect on ethical aspects of research, and applications of the results;</li> </ul> <p>D. Communication</p> <ul style="list-style-type: none"> <li>• is able to communicate experimental results in a lab-journal, written report, and oral presentation;</li> </ul> <p>E. Life-long learning</p> <ul style="list-style-type: none"> <li>• has insight in the scientific and societal relevance of current research in biomolecular sciences and can apply scientific knowledge on issues in society;</li> <li>• can incorporate and interpret new knowledge and insights into existing theories in the domain of the Biomolecular Sciences;</li> <li>• can evaluate his or her own functioning, both by self-reflection and in discussions with others;</li> </ul>	Approval OLC (7.13 c)
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**10. Curriculum structure****Article 10.1 Composition of the programme**

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

**Article 10.2 Compulsory educational components**

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

Educational component	course code	nr of EC	level	Advice OLC; (7.13 a)
<b>- All three specializations:</b>				
Scientific Writing in English	AM_1161B	3	400	
Professionalism in Biomolecular Science	AM_1246	3	400	

<b>- Specialization Molecular Cell Biology:</b>			
Protein Science	AM_470145	6	400
Genomes and Gene Expression	AM_470614	6	400
Internship I	AM_471127	24-30	600
Internship II	AM_471128	36-30	600
Thesis Based on Literature Study	AM_471153	9	600
<b>- Specialization Biological Chemistry:</b>			
Protein Science	AM_470145	6	400
Genomes and Gene Expression	AM_470614	6	400
Internship I	AM_471129	24-30	600
Internship II	AM_471130	36-30	600
Thesis Based on Literature Study	AM_471153	9	600
<b>- Specialization Molecular Bioinformatics:</b>			
Protein Science*	AM_470145	6	400
Genomes and Gene Expression*	AM_470614	6	400
Fundamentals of Bioinformatics	X_405052	6	400
Statistic with R	X_418156	6	400
Internship I	AM_471127 or AM_471129	30	600
Bioinformatics project	AM_1222	24	600

\* One of the two courses is compulsory

#### Article 10.3a Elective educational components with special requirements

1. The student should take one or more of the following specialization electives				Advice OLC; (7.13 a)
Name of educational component	course code	nr of EC	level	
<b>- Specialization Molecular Cell Biology: at least 6 EC required</b>				
Cell Structures and Functions	AM_470615	6	500	
Molecular Infection Biology	AM_470657	6	500	
Signal Transduction in Health and Disease	X_432535	6	500	
<b>- Specialization Biological Chemistry: at least 6 EC required</b>				
Drug-induced Stress and Cellular Response	X_432536	6	500	
Signal Transduction in Health and Disease	X_432535	6	500	
<b>- Specialization Molecular Bioinformatics. MCB &amp; BC courses: at least 12 EC required</b>				
Cell Structures and Functions	AM_470615	6	500	
Molecular Infection Biology	AM_470657	6	500	
Drug-induced Stress and Cellular Response	X_432536	6	500	
Signal Transduction in Health and Disease	X_432535	6	500	
<b>Bioinformatics courses: at least 12 EC required</b>				
Structural Bioinformatics	X_405019	6	400	
Algorithms in Sequence analysis	X_405050	6	400	
Bioinformatics for Translational Medicine	X_405092	6	400	
Biosystems Data Analysis	XMU_437001	6	400	



**Article 10.3b Fully elective educational components**

2. The student can take one or more of the following electives without prior consent from the Examination Board:				Advice OLC; (7.13 a)
Name of educational component	course code	nr of EC	level	
<b>- Specializations: Molecular Cell Biology and Biological Chemistry</b>				
Microbial Genomics	AM_1021	3	500	
Caput Protein Structure as Molecular Basis of Disease	AM_470120	6	500	
Caput Molecular Biotechnology	AM_470604	6	500	
Caput Cellular Protein Trafficking	AM_470605	6	500	
Caput Epigenetics	AM_470606	6	500	
Caput Structural Biology	AM_470607	6	500	
Caput RNA Biology	AM_1208	6	500	
Extreme Biology	AM_470509	6	500	
Developmental biology	5224DEBIGY	6	500	
Biophotonics	AM_470629	6	500	
Biobusiness	M_OBIOBUS10	3	500	
Introduction to programming (Python)	X_401096	6	100	
Structural Bioinformatics	X_405019	6	400	
Fundamentals of Bioinformatics	X_405052	6	400	
Dynamics of Biomolecules and Cells	X_422583	6	400	
Introduction to Systems Biology	X_428565	6	400	
Project Computational Design and Synthesis	X_432734	6	400	
Caput AIMMS Lectures and Seminars	X_432764	3	400	
Chemical Biology	X_432538	6	400	
Biomolecular Screening	X_432542	3	400	
<b>- Specialization: Molecular Bioinformatics</b>				
Introduction to programming (Python)	X_401096	6	100	
Dynamics of Biomolecules and Cells	X_422583	6	400	
Introduction to Systems Biology	X_428565	6	400	
Project Computational Design and Synthesis	X_432734	6	400	
Extreme Biology	AM_470509	6	500	
Biophotonics	AM_470629	6	500	
Biobusiness	M_OBIOBUS10	3	500	
Microbial Genomics	AM_1021	3	500	
Caput Protein Structure as Molecular Basis of Disease	AM_470120	6	500	
Caput Molecular Biotechnology	AM_470604	6	500	
Caput Cellular Protein Trafficking	AM_470605	6	500	
Caput Epigenetics	AM_470606	6	500	
Caput Structural Biology	AM_470607	6	500	
Caput RNA Biology	AM_1208	6	500	
Extreme Biology	AM_470509	6	500	
3. If the student wishes to take a different educational component than listed, advance permission must be obtained in writing from the Examinations Board.				Advice OLC; (7.13 a)

**Article 10.4 Practical exercise**

Except for the practical components incorporated in the compulsory units of study above (see Article 10.2) and in relevant electives, the programme has no separate practical exercise.	Approval OLC (7.13 d)
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**Article 10.5 Participation in practical exercise**

1. In the case of a practical training, the student must attend at least 100 % of the practical sessions. Should the student attend less than 100 %, he/she must repeat the practical training, or the Examiner may have one or more supplementary assignments issued.	Approval OLC (7.13 d)
2. In the case of tutorials with assignments, the student must attend 100 % of the tutorials. Should the student attend less than 100 %, he/she must repeat the study group, or the Examination Board may have one or more supplementary assignments issued.	Approval OLC (7.13 d)
3. In exceptional circumstances, the Examination Board may, at the request of the student, permit an exemption from this requirement if, in the opinion of the Board, the assessment of the intended skills is also possible with a lesser percentage of participation, with or without the imposition of supplementary requirements.	

**11. Evaluation and transitional provisions****Article 11.1 Evaluation of the education**

1. The education provided in this programme is evaluated in accordance with the (attached) evaluation plan. The faculty evaluation plan offers the framework.	Approval OLC (7.13 a1)
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**Article 11.2 Transitional provisions**

By way of departure from the Teaching and Examination Regulations currently in force, the following transitional provisions apply for students who started the programme under a previous set of Teaching and Examination Regulations: <ul style="list-style-type: none"> <li>The courses Ethics in Life Sciences (AM_470707) and Developmental Biology (AM_470613) have been removed from the curriculum.</li> </ul>	Advice OLC (7.13 a)
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Advice and approval by the Programme Committee of Biomolecular Sciences, on 30 April 2019.

Approved by the Faculty Joint Assembly, on 3 September 2019.

Adopted by the board of the Faculty of Science on 30 August 2019.

## Appendix I Overview of articles that must be included in the OER

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

### Section B1: Programme specific – general provisions

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

### Section B2: Programme specific – content of programme

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

## Appendix II Overview of rights to prior consultation (advice) and rights to approve OLC and FGV

(Dutch only)

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

De lettering komt overeen met de lettering van artikel 7.13 lid 2 WHW

### Appendix III      Ordinances VU CvB and Binding Guidelines (richtlijn)

<b>Section B1, article:</b>	<b>Concerns:</b>	<b>CvB ordinance / guideline</b>
7.2.1	Admission criteria; at least WO Bachelor's degree	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
7.2.3	Additional admission criteria; type of criteria	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
<b>Section B1, article:</b>	<b>Concerns:</b>	<b>CvB ordinance / guideline</b>
10.1	Composition programme	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
10.2	Categorization of components	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017