



# Teaching and Examination Regulations (TER)

## Faculty of Science

### Bachelorprogramme in Mathematics

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 following Bachelor's programmes:</p> <ul style="list-style-type: none"> <li>▪ Biomedical Sciences</li> <li>▪ Business Analytics</li> <li>▪ Computer Science</li> <li>▪ Information Sciences</li> <li>▪ Artificial Intelligence</li> <li>▪ Mathematics</li> </ul>	<p>Advice OLC, approval FGV (9.38 sub b)</p>
<p>2. These Regulations enter into force with effect from 1 September 2019.</p>	<p>Advice OLC, approval FGV (9.38 sub 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. (BSA) from the earlier study programme(s): earlier study followed at and/or outside the Vrije Universiteit Amsterdam (including study programme followed earlier at the faculty of Science)
- c. CvB: the Executive Board of Vrije Universiteit Amsterdam.
- d. 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. 7.3.c WHW;
- e. EC (European Credit): an EC credit with a workload of 28 hours of study;
- f. educational component: a unit of study of the programme within the meaning of the WHW
- g. examination: the final examination of the Bachelor's programme;
- h. 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
- i. FGV: Faculty joint assembly – assembly of the faculty student council and faculty staff council;
- j. 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;
- k. 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;
- l. OLC: programme committee
- m. period: a part of a semester
- n. practical exercise: the participation in a practical training or other educational learning activity, aimed at acquiring certain (academic) skills. Examples of practical exercises are:
- researching and writing a thesis or dissertation

- o carrying out a research assignment
  - o taking part in fieldwork or an excursion
  - o taking part in another educational learning activity aimed at acquiring specific skills, or
  - o participating in and completing a work placement;
- o. premaster student those who enroll in a premaster programme;
- p. programme: the totality and cohesion of the course components, teaching activities/methods, contact hours, testing and examination methods and recommended literature;
- q. SAP/SLM: the student information system (*Student Lifecycle Management*);
- r. semester: the first (September - January) or second half (February - August) of an academic year;
- s. 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:  
<https://www.vu.nl/en/study-guide/>;
- t. subject see 'educational component';
- u. 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'.
- v. thesis: a component comprising research into the literature and/or contributing to scientific research, always resulting in a written report;
- w. thesis/internship research/ conducting own research, followed by the final report research project
- x. university: Vrije Universiteit Amsterdam;
- y. WHW: the Dutch Higher Education and Research Act (*Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek*);
- z. 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 Executive Board has to give permission for this.	Ordinance CvB, see appendix 3

### Article 2.2 Frame study programme

1. The programme consists in any case of the following components: a. Academic development of at least 24 EC b. Major/compulsory components of at least 90 EC c. Elective components of study of at least 30 EC The bachelor programme may entail practical exercises, further specified in Section B.	Ordinance CvB, see appendix 3
2. In the first year of the programme, the programme will offer at least fourteen contact hours a week.	Ordinance CvB, see appendix 3
3. In the second and third years of the programme, the programme will offer at least twelve contact hours a week.	Ordinance CvB, see appendix 3

4. Internationalization is included as part of the Bachelor's programme and reflected in or more educational components, such as to gain knowledge and experience in collaboration and teamwork skills, the ability to work in an international, multidisciplinary team, to follow English taught courses at the Vrije Universiteit Amsterdam or abroad.	Ordinance CvB, see appendix 3
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#### Article 2.3 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 fails both the exam and the resit, the student must repeat the entire unit of study. 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, (art. 7.13 x)
4. Paragraph 1 and 2 shall apply mutatis mutandis to the premaster student.	

#### Article 3.2 Type of examination

1. At the student's request, the Examinations 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 the case of a unit of study that 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)
3. Paragraph 1 and 2 shall apply mutatis mutandis to the premaster student.	

#### 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)
3. Paragraph 1 and 2 shall apply mutatis mutandis to the premaster student.	

#### 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. Notwithstanding the provisions in the previous sentence, the following also applies: a. The assessment period for a thesis and/or final assignments may not exceed twenty working days.	Ordinance CvB, see appendix 3
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<p>b. The assessment period in the first year of the programme is not to exceed ten working days in conjunction with the Binding Study Advice (BSA).</p> <p>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.</p>	
<p>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.</p> <p>b. The examiner will determine the result of the partial examination at least five working days prior to the next (partial) examination opportunity.</p>	Advice OLC; approval FGV (7.13 o)
<p>3. In the case of alternative forms of oral or written examinations, the Examinations Board determines in advance how and by what deadline the student will be informed of the results.</p>	Advice OLC; approval FGV (7.13 o)
<p>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.</p>	Advice OLC; approval FGV (9.38 sub b)
<p>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 article 3.9 (TER), as well as his/her right to lodge a complaint before the Examination Board, and if necessary, to appeal to the Examination Appeals Board (in Dutch: COBEX).</p>	
<p>6. Paragraph 1 shall apply mutatis mutandis to the premaster student, with the exception of provisions under a) and b).</p>	

#### Article 3.5 Examination opportunities

<p>1. a. Per academic year, two opportunities to take examinations per educational component will be offered.</p> <p>b. The options for retaking practical components, work placements and theses are detailed in the relevant work placement manual, teaching regulations or graduation regulations.</p>	Ordinance CvB, see appendix 3
<p>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.</p>	Ordinance CvB, see appendix 3
<p>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.</p>	Advice OLC; approval FGV (7.13 j)
<p>4. The Examination Board may allow a student an extra opportunity to sit an examination if that student:</p> <p>a) is lacking only those credits to qualify for his or her degree;</p> <p>b) has failed the examination during all the previously offered attempts, unless participation in an examination was not possible for compelling reasons.</p> <p>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 Bachelor'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.</p>	Ordinance CvB, see appendix 3
<p>5. This article shall apply mutatis mutandis to the premaster student.</p>	

#### Article 3.6 Marks

<p>1. Marks are given on a scale from 1 to 10 with no more than one decimal point.</p>	Ordinance CvB, see appendix 3
<p>2. The final marks are given in whole or half points.</p>	Ordinance CvB, see appendix 3
<p>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.</p>	Ordinance CvB, see appendix 3

<p>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:</p>																																																											
<table border="1"> <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> <tr><td>2,75</td><td>3,25</td><td>3,0</td></tr> <tr><td>3,25</td><td>3,75</td><td>3,5</td></tr> <tr><td>3,75</td><td>4,25</td><td>4,0</td></tr> <tr><td>4,25</td><td>4,75</td><td>4,5</td></tr> <tr><td>4,75</td><td>5,50</td><td>5,0</td></tr> <tr><td>5,50</td><td>6,25</td><td>6,0</td></tr> <tr><td>6,25</td><td>6,75</td><td>6,5</td></tr> <tr><td>6,75</td><td>7,25</td><td>7,0</td></tr> <tr><td>7,25</td><td>7,75</td><td>7,5</td></tr> <tr><td>7,75</td><td>8,25</td><td>8,0</td></tr> <tr><td>8,25</td><td>8,75</td><td>8,5</td></tr> <tr><td>8,75</td><td>9,25</td><td>9,0</td></tr> <tr><td>9,25</td><td>9,75</td><td>9,5</td></tr> <tr><td>9,75</td><td>10,0</td><td>10</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	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	
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4.	The Examination Board can allow using 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																																																									
5.	This article shall apply mutatis mutandis to the premaster student.																																																										

### 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: <ul style="list-style-type: none"> <li>a) has passed a course component of a university or higher professional education programme that is equivalent in terms of content and level;</li> <li>b) 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> </ul> The Examination Board will make a decision within six weeks after receiving the request.	Advice OLC; approval FGV (7.13 r)
2.	A maximum of 60 EC of the curriculum can be accumulated through granted exemptions for the one three-year bachelor programme. The substituting courses (educational components) are not included.	Advice OLC; approval FGV (art. 7.13 r WHW jo art. 9.38 sub b)
3.	The Bachelor's thesis is excluded from this exemption possibility.	Advice OLC; approval FGV (9.38 sub 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.	Legal provision
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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)
3. In exception to paragraphs 1 and 2 the results of the premaster programme remain valid until 1 September 2020.	Advice OLC; approval FGV (art. 9.38 par. b)

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

1. For at least twenty working days after the announcement of the results of a written interim examination, the student can, on request, inspect his/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 discussion or if the student was unable to attend the collective discussion through no fault of his or her own.	Advice OLC; approval FGV (7.13 q)
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)
4. This article shall apply mutatis mutandis to the premaster student.	

#### 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. Honours programme

#### Article 4.1 Honours programme

1. Vrije Universiteit Amsterdam offers an honoursprogramme for students who meet the admission requirements. As to participate in the Honours programme, the student can apply online, or otherwise may be appointed by the programme director. The Honours programme consists of educational components taken in addition to the standard curriculum.	Ordinance CvB, see appendix 3
2. The honoursprogramme comprises 30 EC, a minimum of 12 EC of which consist of faculty honourscomponents and a minimum of another 12 EC consist of interfaculty honourscomponents. The choices available to the student will be published via the website ( <a href="http://www.vu.nl/nl/opleidingen/overig-onderwijs/honours-programme/index.aspx">www.vu.nl/nl/opleidingen/overig-onderwijs/honours-programme/index.aspx</a> ) and/or the study guide.	Ordinance CvB, see appendix 3
3. For admission to the honoursprogramme, the student must have secured all credits from the first year and have been awarded a weighted average mark of at least a 7.5.	Ordinance CvB, see appendix 3
4. A student who has met the requirements of the regular Bachelor's programme within the nominal duration of study, who has achieved an average weighted mark of at least 7.5 for all components of the Bachelor's programme (excluded the honourscomponents) and who has also met the requirements of the honoursprogramme will receive a Bachelor diploma with a transcript indicating that he or she has successfully completed the honoursprogramme.	Ordinance CvB, see appendix 3
5. In order to prevent significant unfairness, the Examination Board may deviate from the provisions of paragraphs 3 and 4.	(See art. 6.1.) Advice OLC; approval FGV (9.38 sub b)

## 5. Academic student counselling, advice regarding continuation of studies and study progress

### Article 5.1 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/her disposal in VUnet.	Advice OLC; approval FGV (7.13 u)
2. Enrolled students are eligible for academic student counselling. Academic student counselling is provided by a. The Student General Counselling Service b. Student psychologists c. Faculty academic advisors	Advice OLC; approval FGV (7.13 u)
3. This article shall apply mutatis mutandis to the premaster students.	

### Article 5.2 Advice regarding continuation of studies

1. The faculty board will issue every student on a full-time Bachelor's programme with a recommendation on continuation of his or her studies, at the end of the first year of study. The recommendation on continuation of studies is issued on behalf of the faculty board by the faculty BSA committee	Ordinance CvB, see appendix 3
2. Prior to 1 February, the student will receive an overview of his or her results.	Ordinance CvB, see appendix 3
3. A student who has not completed enough EC, will receive a warning stating that sufficient improvement is necessary to reach the standard for a positive recommendation on continuation of studies at the end of the academic year and will be advised to plan a meeting with an academic advisor. The purpose of this meeting will be to discuss the study methods, to review the choice of the bachelor programme, to discuss, if any, personal circumstances, and if necessary, a referral.	Advice OLC (7.13 f)
4. If the recommendation contains a rejection ('negative recommendation on continuation of studies') the provisions of Article 5.3 apply.	Advice OLC (7.13 f)
5. A recommendation will not be issued if the student terminates his or her enrolment before 1 February of his/her first academic year.	Advice OLC (7.13 f)

### Article 5.3 Binding (negative) recommendation on continuation of studies (BSA)

1. The recommendation issued at the end of the academic year will contain a binding rejection if the student has not achieved the standard required for positive recommendation on continuation of studies. The standard required for a positive recommendation is 42 EC. Recommendation on continuation of studies will not be issued if the student demonstrates that he/she did not meet the standard as described in Section 2.1 of the Implementation Regulation of the Higher Education and Research Act.	Ordinance CvB, see appendix 3
2. As soon as possible after the last resits of the second semester of the first year, a student who has not met the standard will be informed that the faculty board intends to issue him or her with negative binding recommendation on continuation of studies. The same procedure applies in the next year of enrolment if the student was permitted to continue with his/her study programme as a result of personal circumstances and has still not successfully met all of the requirements of the first year of study by that time. No recommendation will be issued to the student if he or she demonstrates that he or she again did not meet the standard as a consequence of personal circumstances.	Ordinance CvB, see appendix 3
3. Along with the information referred to in the previous paragraph, the student will also be informed of the possibility of being heard by the BSA committee and of how he or she can apply for such a hearing.	Ordinance CvB, see appendix 3
4. As soon as possible (no more than 10 working days) after the hearing and on the advice of the BSA committee, the faculty board will determine which students will be issued with a negative binding recommendation on continuation of studies.	Ordinance CvB, see appendix 3

5. Students may lodge an appeal against a decision on a binding negative recommendation on continuation of studies with the Examination Appeals Board of Vrije Universiteit Amsterdam within six weeks of the day of the decision's announcement.	Ordinance CvB, see appendix 3
6. Students who receive a binding negative recommendation on continuation of studies may therefore not enroll in the same (or very similar) Bachelor's programme for the next three academic years. If applicable, further provisions concerning the related educational programmes are stipulated in Section B.	Ordinance CvB, see appendix 3

#### Article 5.4 Personal circumstances

1. The faculty board will not include a rejection in the binding recommendation on the continuation of studies in the case of personal circumstances, as a result of which the student concerned cannot have been reasonably expected to have met the BSA standard.	Advice OLC (7.13 f)
2. If a circumstance, as described in Section 2.1 of the Implementation Regulation of the Higher Education and Research Act, should occur, the student must notify the academic adviser office as soon as possible, providing details of: <ol style="list-style-type: none"> <li>the period in which the circumstance occurs or occurred;</li> <li>a description of the circumstance and its seriousness;</li> <li>the extent to which he or she cannot or could not participate in instruction/classes or an interim examination.</li> </ol> It is the student's responsibility to submit documentary evidence to substantiate his or her report.	Advice OLC (7.13 f)
3. If required, the academic advisor may advise the BSA Committee on the extent to which personal circumstances have influenced the student's study progress.	Advice OLC (7.13 f)

#### Article 5.5 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 Examinations 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)
9. This article shall apply mutatis mutandis to the premaster student, with the exception of	

provision concerning the fulfilment of the exit qualifications for the study programme mentioned in par. 1.	
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## 6. Hardship clause

### Article 6.1 Hardship clause

1. 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)
2. This article shall apply mutatis mutandis to the premaster student.	

### Article 6.2. 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 VU.net.	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

### 7. General programme information and characteristics

#### Article 7.1 Study programme information

1. The programme Mathematics CROHO number 59322 is offered on a full-time and part-time basis.	Advice OLC; approval FGV (7.13 i)
2. The language of instruction is English.	Advice OLC; approval FGV (9.38 sub b)

#### Article 7.1a. Deviant size of educational component

By way of derogation from art. 2.1 par. 3, the units listed below have deviant size of 3 EC: <ul style="list-style-type: none"> <li>- XB_0006: Introduction to Mathematical Modelling, Latex and Mathematica;</li> <li>- X_400629: Introduction to Programming (Python);</li> <li>- X_400652: History of Science;</li> <li>- X_400433: Philosophy.</li> </ul>	Approval OLC (art. 7.13 lid 2, under e), approval CvB
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#### Article 7.2 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)

### 8. Further admission requirements

#### Article 8.1 Additional previous education requirements

1. Students who do not meet the previous education requirements as stipulated in 'Regulations on Additional Prior Education Requirements for Higher Education' (Ministry of Education Culture and Science) currently in force may still be admitted to the Programme by successfully completing one or more of the following exams: <i>Not applicable</i> .	Exception in WHW: advice OLC
2. Applicants with a diploma from a country other than the Netherlands will meet the profile requirements as stated under paragraph 1 if the level of mathematics and the topics covered are comparable to Mathematics B as taught in Dutch pre-university secondary school programmes. The Examination Board Will assess whether these conditions have been met. The topics covered are specified in <a href="#">Appendix V</a> .	
3. Students who do not meet the previous education requirements but have successfully completed the first year of a higher professional education programme can gain admission to the programme by demonstrating that their level of mathematics is comparable to Mathematics B as taught in Dutch pre-university secondary school programmes. The examination board will assess whether these conditions have been met.	Advice OLC; approval FGV (9.38 sub b)

#### Article 8.2 Colloquium doctum (entrance examination)

1. Persons aged 21 years and older who do not meet the requirements for previous education can submit a request to the Executive Board to take an entrance examination (colloquium doctum), as stipulated in Section 7.29 of the WHW. The entrance examination concerns the following subjects at final pre-university examination level: <ul style="list-style-type: none"> <li>a) Mathematics B equivalent to final examination university entry level (VWO), and;</li> <li>b) A command of English equivalent to pre-university final-exam level (VWO).</li> </ul>	Advice OLC; approval FGV (9.38 sub b)
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2. The proof that the entrance examination has been passed, only provides entitlement to admission to the intended programme or programmes for the academic year after the examination was taken.	Advice OLC; approval FGV (9.38 sub b)
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## 9. Interim examinations and results

### Article 9.1 Sequence of interim examinations

<p>1. Students may participate in interim examinations [or practical exercises] of the educational components below only if they have passed the interim examination or examinations for the educational components mentioned hereinafter:</p> <ul style="list-style-type: none"> <li>• All second-year students of Mathematics are required to take the Study and Career course in period 6. Students can only receive credits for completing the Project Pure Mathematics course or the Project Applied Mathematics course if they have passed the Study and Career course.</li> <li>• Students may only start on the Bachelorproject Wiskunde if they meet the following condition at the start of the course: they have earned at least 120 of the full 180 credits.</li> </ul>	Advice OLC; approval FGV (7.13 h, 7.13 s/t)
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### Article 9.2 Validity period for results

1. As laid down in article 3.8.	Advice OLC; approval FGV (7.13 k)
2. A student may request the Examination Board to extend the validity of an exam. If the exam shows that a student's knowledge is insufficient or outdated, or if the student's skills and insights evaluated in the exam are demonstrably outdated, the Examination Board may impose a supplementary examination, impose a replacement examination or refuse to extend the period of validity.	Legal provision
3. In situations where a limited period of validity applies, the period of validity of examinations may be extended in the event of extenuating circumstances as stipulated in WHW Article 7.51, paragraph 2, with at least the period of allocated financial assistance specified in WHW Article 7.15, paragraph 1.	Legal provision

### Article 9.3 Degree

Students who have successfully completed the final examination and met all other requirements stipulated in the WHW will be given the degree of Bachelor of Science (BSc). The degree awarded is stated on the diploma.	Legal provision, WHW
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## Section B2: Programme specific – contents of programme

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

#### Article 10.1 Programme objective

The objective of the programme is for students to acquire sufficient basic theoretical and practical knowledge and skills in the field of Mathematics and any related science disciplines to enable them to go on to pursue a Master's in Mathematics or a related science discipline, or to enter the labor market. The programme also aims to impress upon the student the importance of the discipline in a broader scientific, philosophical and societal context.	Advice OLC; (7.13 a)
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#### Article 10.2 Majors (specializations)

<p>The programme has the following majors (for students enrolled in 2018 or later)</p> <ol style="list-style-type: none"> <li>1. Pure Mathematics:             <ol style="list-style-type: none"> <li>a. Algebra and Geometry</li> <li>b. Analysis and Dynamical Systems</li> <li>c. Probability and Statistics</li> <li>d. Education</li> </ol> </li> <li>2. Applied Mathematics             <ol style="list-style-type: none"> <li>a. Biomedical Mathematics</li> <li>b. Computer Science</li> <li>c. Data Science</li> <li>d. Econometrics and Operations Research</li> <li>e. Education</li> </ol> </li> </ol>	Advice OLC; (7.13 a)
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**Article 10.3 Exit qualifications**

<p>Upon completing the Bachelor's programme in Mathematics, the student is expected</p> <p>A1 to have a thorough theoretical and practical knowledge of the main disciplines of mathematics (algebra, geometry, analysis, dynamical systems, probability, statistics), at an internationally recognized Bachelor level;</p> <p>A2 to be aware of the interconnected, international and advancing character of mathematics, and of the role and applicability of mathematics in other sciences and in society;</p> <p>A3 (only applicable to students who followed the major Applied Mathematics) to be knowledgeable of at least one other scientific discipline in which mathematics plays an essential role (e.g. computer science, data science, econometrics and operations research, or biomedical science);</p> <p>B1 to be able to select and apply mathematical and computational techniques for answering quantitative questions, and to select appropriate mathematical models for solving problems from other scientific disciplines;</p> <p>B2 to be able to program a computer in a programming language and a number of mathematical software packages, in order to solve (applied) mathematical problems;</p> <p>B3 to possess the ability to manage a small research project and to perform mathematical or applied mathematical research under close supervision;</p> <p>C1 to be capable of strict reasoning in the way that is characteristic for mathematics, and in particular of giving mathematical proofs and abstractions;</p> <p>C2 to possess a critical and independent attitude towards the validity of mathematical argumentation, and towards the usage of mathematical models and techniques in science and engineering.</p> <p>D1 to be able to communicate about mathematics and its applications, both orally and in writing, to audiences with varying mathematical backgrounds;</p> <p>E1 to have the ability to acquire new mathematical knowledge, and to collect mathematical information, for example through the internet, literature study, or research;</p> <p>E2 to meet the entrance requirements for a Master's programme in Mathematics or Mathematics Education at a Dutch or foreign university, and to be able to make a motivated choice for a further study and career.</p>	<p>Approval OLC (7.13 b)</p>
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**Article 10.4 Language test**

<p>1. At the start of the first year of study every student must complete a diagnostic language test (AB_ELT) in the language of instruction of his or her programme.</p>	<p>Advice OLC; (7.13 a)</p>
<p>2. Any student who does not achieve a pass in the language test must take the 'Refresher Course' organized by the Language Desk (Taalloket).</p>	<p>Approval OLC (7.13 c)</p>



## 11. Curriculum structure

### Article 11.1 Academic development

1. Academic development is part of the study programme. This includes: (1) Academic skills/critical reasoning; (2) Methods & techniques; (3) Philosophical training.	Ordinance CvB, see appendix 3
2. The academic development is covered in the following compulsory courses: (1) X_401104: Basis Concepts in Mathematics; (2) X_400652: History of Science; (3) XB_0006: Introduction to Mathematical Modelling, Latex and Mathematica; (4) X_400629: Introduction to Programming (Python); (5) XB_0007: Mathematical Modelling of Dynamical Systems; (6) X_400433: Philosophy; (7) X_400004: Statistics; (8) XB_0027: Mathematical Modelling of Stochastic Systems.	Advies OLC (art. 7.13 lid 2 onder a WHW)

### Article 11.2 Major

1. The major comprises a package of compulsory and possibly optional units of study.	Ordinance CvB, see appendix 3
2. In addition, units of study are categorized as introductory (100), in-depth (200) and advanced (300) level.	Ordinance CvB, see appendix 3

### Article 11.3 Compulsory educational components of the major

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

#### Article 11.3a | Year 1

Year 1				
Name of educational component	course code	nr of EC	level	Advice OLC; (7.13 a)
Basic Concepts in Mathematics	X_401104	6	100	
Discrete Mathematics	XB_0008	6	100	
English Language Test	AB_ELT	0	100	
Group Theory	X_401105	6	200	
Introduction to Mathematical Modelling, Latex and Mathematica	XB_0006	3	100	
Introduction to Programming (PYTHON)	X_400629	3	100	
Linear Algebra	X_400638	6	100	
Mathematical Analysis	XB_0009	6	100	
Mathematical Modelling of Dynamical Systems	XB_0007	6	100	
Multivariable Calculus	XB_41008	6	100	
Probability Theory	X_400622	6	200	
Single Variable Calculus	XB_41007	6	100	

#### Article 11.3b | Year 2 - Pure Mathematics. Track specific constraints

Year 2 – Pure Mathematics				
Name of educational component	course code	nr of EC	level	Advice OLC; (7.13 a)
Complex Analysis	X_400386	6	300	
Dynamical Systems	X_400637	6	300	
Fourier Analysis	XB_0005	6	200	
Mathematical Modelling of Stochastic Systems	XB_0027	6	200	
Numerical Methods	X_401039	6	300	

Project Pure Mathematics	XB_0029	6	300	
Rings and Fields	X_400630	6	300	
Statistics	X_400004	6	200	
Topology	X_400416	6	300	

Year 2 – Pure Mathematics – Algebra and Geometry				
Name of educational component	course code	nr of EC	level	Advice OLC;
Galois Theory	XBU_417008	6	300	(7.13 a)

Year 2 – Pure Mathematics – Analysis and Dynamical systems				
Name of educational component	course code	nr of EC	level	Advice OLC;
Galois Theory (*)	XBU_417008	6	300	(7.13 a)
Statistical Data Analysis (*)	X_401029	6	300	
(*): one out of two				

Year 2 – Pure Mathematics – Probability and Statistics				
Name of educational component	course code	nr of EC	level	Advice OLC;
Statistical Data Analysis	X_401029	6	300	(7.13 a)

Article 11.3c | Year 2 - Applied Mathematics. Track specific constraints

Year 2 – Applied Mathematics				
Name of educational component	course code	nr of EC	level	Advice OLC;
Dynamical Systems	X_400637	6	300	(7.13 a)
Fourier Analysis	XB_0005	6	200	
Mathematical Modelling of Stochastic Systems	XB_0027	6	200	
Numerical Methods	X_401039	6	300	
Project Applied Mathematics	XB_0028	6	300	
Statistical Data Analysis	X_401029	6	300	
Statistics	X_400004	6	200	

Year 2 – Applied Mathematics – Biomedical Mathematics				
Name of educational component	course code	nr of EC	level	Advice OLC;
Biochemistry	XB_0030	6	200	(7.13 a)
Genetics	AB_1135	6	100	
Coplex Analysis (*)	X_400386	6	300	
Topology (*)	X_400416	6	300	
(*): one out of two				

Year 2 – Applied Mathematics – Computer Science				
Name of educational component	course code	nr of EC	level	Advice OLC;
Computer Networks	X_400487	6	100	(7.13 a)
Databases	X_401008	6	200	
Introduction to Programming (Java)	X_400634	6	100	

Year 2 – Applied Mathematics – Data Science				
Name of educational component	course code	nr of EC	level	Advice OLC;
Business Intelligence and Analytics	E_IBK3_BIA	6	300	(7.13 a)
Databases	X_401008	6	200	
Introduction to Programming (Java)	X_400634	6	100	

<b>Year 2 – Applied Mathematics – Econometrics and Operations Research</b>				
<b>Name of educational component</b>	<b>course code</b>	<b>nr of EC</b>	<b>level</b>	Advice OLC; (7.13 a)
Operations Research 1	E_EOR2_OR1	6	200	
Operations Research 2	E_EOR2_OR2	6	200	
Complex Analysis (*)	X_400386	6	300	
Topology (*)	X_400416	6	300	
(*): one out of two.				

## Article 11.3d | Year 3

<b>Year 3</b>				
<b>Name of educational component</b>	<b>course code</b>	<b>nr of EC</b>	<b>level</b>	Advice OLC; (7.13 a)
Bachelor Project Wiskunde	X_400518	12	400	
History of Science	X_400652	3	200	
Philosophy	X_400433	3	200	

## Article 11.4 Elective educational components of the major

<b>Year 3 – General Track</b>				
<b>Name of educational component</b>	<b>course code</b>	<b>nr of EC</b>	<b>level</b>	Advice OLC; (7.13 a)
Applied Analysis: Financial Mathematics	X_400076	6	400	
Bayesian Statistics	XBU_400468	6	400	
Biomedical Mathematics	X_401056	6	300	
Chaotic Dynamical Systems	XBU_41003	6	300	
Differential Geometry (BSc)	X_400631	6	400	
Functional Analysis (BSc)	XBU_417013	6	400	
Galois Theory	XBU_417008	6	300	
Markov Chains	XBU_418085	6	300	
Mathematical Systems and Control Theory	X_400180	6	400	
Measure Theory	X_401028	6	300	
Number Theory	X_400632	6	400	
Partial Differential Equations (BSc)	X_400163	6	300	
Representation Theory	XBU_417004	6	400	
Statistical Data Analysis	X_401029	6	300	

<b>Year 3 – Biomedical Track</b>				
<b>Name of educational component</b>	<b>course code</b>	<b>nr of EC</b>	<b>level</b>	Advice OLC; (7.13 a)
Applied Analysis: Financial Mathematics	X_400076	6	400	
Bayesian Statistics	XBU_400468	6	400	
Chaotic Dynamical Systems	XBU_41003	6	300	
Complex Analysis	X_400386	6	300	
Differential Geometry (BSc)	X_400631	6	400	
Functional Analysis (BSc)	XBU_417013	6	400	
Galois Theory	XBU_417008	6	300	
Markov Chains	XBU_418085	6	300	
Mathematical Systems and Control Theory	X_400180	6	400	
Measure Theory	X_401028	6	300	
Number Theory	X_400632	6	400	
Partial Differential Equations (BSc)	X_400163	6	300	
Representation Theory	XBU_417004	6	400	
Topology	X_400416	6	300	

**Article 11.5 Practical exercise**

Not applicable.

**Article 11.6 Participation in practical exercises and tutorials**

Not applicable.

**12. Electives****Article 12.1 Elective period**

1.	The first semester of the third year of the curriculum comprises elective educational components.	Ordinance CvB, see appendix 3
2.	For this elective period, the student can take: <ol style="list-style-type: none"> <li>a) a minor (a coherent package of related educational components)</li> <li>b) individual choice of at least five educational components at the faculty or elsewhere, of which at least two (12 EC) must be at level 300, and maximum 1 course (6 EC) at level 100.</li> <li>c) an educational component of the university abroad. In addition, one educational component of the master programme (6 EC) at level 400 or higher can be included in the package. The approval of the Examination Board is required. The educational component concerned, cannot be included in the master educational programme.</li> </ol>	Ordinance CvB, see appendix 3
3.	Prior consent must be obtained from the Examinations Board.	Ordinance CvB, see appendix 3

**Article 12.2 Minors**

1.	The student who meets the admission requirements can take a 'University minor' without prior consent from the Examination Board. The 'University minors' are listed on the VU website.	Ordinance CvB, see appendix 3
2.	The student can take one of the following minors without prior consent from the Examination Board: <ol style="list-style-type: none"> <li>a. General Track:             <ol style="list-style-type: none"> <li>i. Minor Mathematics;</li> <li>ii. Educational minor;</li> <li>iii. University minor.</li> </ol> </li> <li>b. Biomedical track:             <ol style="list-style-type: none"> <li>i. Biomedical Mathematics minor;</li> <li>ii. Biomolecular and Neuro Sciences minor (Neuro Science track);</li> <li>iii. Educational minor;</li> <li>iv. University minor.</li> </ol> </li> </ol> <p>The content of these minors can be found in the study guide.</p>	Advice OLC; (7.13a)

**13. Honours programme****Article 13.1 Faculty honours components**

The components of the honours programme offered by bachelor Mathematics programme are chosen by the honours student in consultation with the study advisor.	Advice OLC; (7.13a)
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## 14. Binding recommendation on continuation of studies (BSA)

### Article 14.1 Binding (negative) recommendation

1. In order to obtain a positive recommendation on continuation of studies, the student must have obtained at least 42 EC by the end of the first year of enrolment	Advice OLC (7.13 f)
2. No quality requirements have been set to meet the standard for positive recommendation on continuation of studies.	Advice OLC (7.13 f)
3. Students who receive a binding negative recommendation on continuation of studies cannot enroll for the following Bachelor's programme offered by the Faculty during the subsequent three academic years: Mathematics	Advice OLC (7.13 f)

## 15. Evaluation and transitional provisions

### Article 15.1 Evaluation of the education

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 a)
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### Article 15.2 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: <i>Not applicable</i> .	Advice OLC (7.13 a)
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Advice and approval by the Programme Committee, on 29 May 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>7. General programme information and characteristics</b>	
Article 7.1 Study programme information	7.13 paragraph 2 sub i, r
Article 7.2 Teaching formats used and modes of assessment	7.13 paragraph 2 sub l, x
Article 7.3 Academic student counselling	7.13 paragraph 2 sub u
<b>8. Further admission requirements</b>	
Article 8.1 Additional previous education requirements	7.25, paragraph 4
Article 8.2 Colloquium doctum (entrance examination)	7.29, paragraph 2
<b>9. Interim examinations and results</b>	
Article 9.1 Sequence of interim examinations	7.13 paragraph 2 sub h, s, t
Article 9.2 Validity period for results	7.13 paragraph 2 sub k

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

<b>10. Programme objectives, specializations and exit qualifications</b>	
Article 10.1 Programme objective	7.13 paragraph 2 sub a
Article 10.2 Majors (specializations)	7.13 paragraph 2 sub a
Article 10.3 Exit qualifications	7.13 paragraph 2 sub b, c
<b>11. Curriculum structure</b>	
Article 11.1 Academic development	7.13 paragraph 2 sub a
Article 11.2 Major	7.13 paragraph 2 sub a
Article 11.3 Compulsory educational components of the major	7.13 paragraph 2 sub a
Article 11.4 Elective educational components of the major	7.13 paragraph 2 sub a
Article 11.5 Practical exercise	7.13 paragraph 2 sub d
Article 11.6 Participation in practical exercise	7.13 paragraph 2 sub d
<b>12. Electives</b>	
Article 12.1 Elective period	7.13 paragraph 2 sub a
Article 12.2 Minors	7.13 paragraph 2 sub a
<b>13. Honours programme</b>	
Article 13.1 Faculty Honours components	7.13 paragraph 2 sub a
<b>14. Binding recommendation on continuation of studies (BSA)</b>	
Article 14.1 Binding (negative) recommendation	7.13 paragraph 2 sub f
<b>15. Evaluation and transitional provisions</b>	
Article 15.1 Evaluation of the education	7.13 paragraph 2 sub a1
Article 15.2 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 lid 2 WHW	FGV		OplC	
	I	A	I	A
a. de inhoud van de opleiding en van de daaraan verbonden examens				
a1. de wijze waarop het onderwijs in de desbetreffende opleiding wordt geëvalueerd				
b. de inhoud van de afstudeerrichtingen binnen een opleiding				
c. de kwaliteiten op het gebied van kennis, inzicht en vaardigheden die een student zich bij beëindiging van de opleiding moet hebben verworven				
d. waar nodig, de inrichting van praktische oefeningen				
e. de studielast van de opleiding en van elk van de daarvan deel uitmakende onderwijsseenheden				
f. de nadere regels, bedoeld in de Articleen 7.8b, zesde lid, en 7.9, vijfde lid (BSA)				
g. ten aanzien van welke masteropleidingen toepassing is gegeven aan Article 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 Article 7.9b, plaatsvindt (excellentietraject binnen een opleiding)				
x. de feitelijke vormgeving van het onderwijs				
alle overige onderwerpen die in de OER zijn geregeld maar die niet als zodanig zijn genoemd in art. 7.13 WHW onder a t/m x.				

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

### Afkortingen:

FGV: Facultaire Gezamenlijke  
 Vergadering OplC: Opleidingscommissie  
 I: Instemmingsrecht  
 A: Adviesrecht

**Appendix III Ordinances VU Executive Board (CvB) and Binding Bachelor's Guidelines**

<b>Deel B, Article:</b>	<b>Concerns:</b>	<b>CvB ordinance / guideline</b>
11.1.1	Academische development	Bachelor-richtlijn, revised on 6 June 2017
11.2	Major	Bachelor-richtlijn, revised on 6 June 2017
12.1	Elective period (first semester, 3rd year)	Bachelor-richtlijn, revised on 6 June 2017
12.2.1	Participation in universityminor	CvB ordinance Profileringsruimte 22-11-2010



## Appendix IV Article 2.1 of the WHW Implementation Decree (1 juni 2018)

(Dutch only)

1. De persoonlijke omstandigheden bedoeld in de artikelen 7.8b, derde lid, en 7.9, derde lid, van de wet, zijn uitsluitend:
  - a. ziekte van betrokkene,
  - b. lichamelijke, zintuiglijke of andere functiestoornis van betrokkene,
  - c. zwangerschap van betrokkene,
  - d. bijzondere familie-omstandigheden,
  - e. het lidmaatschap, daaronder begrepen het voorzitterschap, van:  
*bij universiteiten: de universiteitsraad, faculteitsraad, het orgaan dat is ingesteld op grond van de medezeggenschapsregeling, bedoeld in artikel 9.30, derde lid, onderscheidenlijk artikel 9.51, tweede lid, van de wet, het bestuur van een opleiding of de opleidingscommissie, alsmede het lidmaatschap van het bestuur van een stichting die blijkens haar statuten tot doel heeft de exploitatie van voorzieningen, behorende tot de studentenvoorzieningen, dan wel van een daarmee naar het oordeel van het instellingsbestuur gelet op de taak gelijk te stellen orgaan.*
  - f. andere in de regelingen, bedoeld in de artikelen 7.8b, zesde lid, en 7.9, vijfde lid, van de wet door het instellingsbestuur aan te geven omstandigheden waarin betrokkene activiteiten ontplooit in het kader van de organisatie en het bestuur van de zaken van de instelling,
  - g. het lidmaatschap van het bestuur van een studentenorganisatie van enige omvang met volledige rechtsbevoegdheid, dan wel van een vergelijkbare organisatie van enige omvang, bij wie de behartiging van het algemeen maatschappelijk belang op de voorgrond staat en die daartoe daadwerkelijk activiteiten ontplooit.
2. Het instellingsbestuur kan voor de toepassing van het eerste lid, onderdeel g, nadere regels vaststellen omtrent het aantal bestuursleden dat ten hoogste per organisatie per studiejaar in aanmerking komt, zomede omtrent welke bestuursfuncties in aanmerking komen.

## Appendix V Prior education requirements

Additional prior education requirements for students with a foreign diploma.

A student will meet the prior education requirements if his/her diploma includes mathematics at a level commensurate with Mathematics B as taught in Dutch pre-university programmes (VWO), including at least 7 of the following 10 topics:

- a. Equations and inequalities
- b. Functions and graphs
- c. The derivative function
- d. Exponents and logarithms
- e. Trigonometric functions
- f. Differential calculus
- g. Exponential and logarithmic functions
- h. Integral calculus
- i. Trigonometry
- j. Derivative and second derivative

The topics listed above are specified in greater detail below.

- a. Equations and inequalities
  - x Quadratic Equations
  - x Higher order equations
  - x Equations with roots and fractions
  - x Systems of equations
- b. Functions and graphs
  - x Linear functions
  - x Quadratic functions
  - x Change graphs (translations and multiplications)
  - x Root functions
  - x Fractional functions
- c. The derivative function
  - x Increment graphs
  - x The differential quotient
  - x Tangents and rates of change
  - x Limit and derivative
  - x Applications of the derivative (rate)
- d. Exponents and logarithms
  - x The standard function
  - x Exponential growth
  - x Logarithms
  - x Applications of logarithms
- e. Trigonometric functions
  - x Unit circle and radial
  - x Trigonometric equations
  - x Sinusoidal transformations
  - x Plotting sinusoids
- f. Differential calculus
  - x The derivative of fractional functions (product rule and quotient rule)
  - x The derivative of power functions
  - x The chain rule
  - x Tangents and apexes
  - x Apexes and intersections
- g. Exponential and logarithmic functions
  - x Logarithmic and exponential equations

- x Graphs of exponential and logarithmic functions
- x Base e
- x The natural logarithm
- h. Integral calculus
  - x Riemann sums and integrals
  - x Surfaces and volumes (in revolutions around the X axis)
  - x Reduced functions
  - x Applications of integrals
- i. Trigonometry
  - x Trigonometric formulas
  - x Differentials of trigonometric functions
  - x Reducing trigonometric functions
- j. Derivative and second derivative
  - x The second derivative
  - x Applications of the second derivative
  - x Tangents in graphs
  - x Tangentials and perpendicular intersections

An exemption from the required similarity in topics covered as provided here may be granted if the level of mathematics is demonstrably higher than Mathematics B at a Dutch pre-university school (VWO).