

Teaching and Examination Regulations

Bachelor's programme in Mathematics Faculty of Science

Academic year 2022-2023

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

1. These Regulations apply to anyone enrolled in the programme, irrespective of the academic year in which the student was first enrolled in the programme. This applies to both the faculty section (part A), and the programme-specific section (part B) of these Teaching and Examination Regulations.	Advice OLC, approval FGV (9.38 sub b)
2. These Regulations enter into force on 1 September 2022.	Advice OLC, approval FGV (9.38 sub b)
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.	Advice OLC, approval FGV (9.38 sub b)

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 Universiteit Amsterdam and an educational institution within or outside the Netherlands, 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): A course credit with a workload of 28 hours of study;
- e. examination: the final examination of the bachelor's programme (in accordance with the WHW: the entirety of all interim examinations within the programme);
- f. 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;
- g. FGV: Faculty joint assembly – assembly of the faculty student council and faculty staff council;
- h. interim examination: an assessment of the student's knowledge, understanding and skills relating to an educational component. The assessment is expressed in terms of a final mark. An interim examination may consist of one or more partial examinations. A resit of an interim examination covers the same material as the original interim examination;
- i. 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;
- j. OLC: programme committee;
- k. period: a part of a semester;

- l. 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
 - carrying out a research assignment
 - taking part in fieldwork or an excursion
 - taking part in another educational learning activity aimed at acquiring specific skills, or
 - participating in and completing a work placement;
- m. programme: the totality and cohesion of the units of education, teaching activities/methods, contact hours, testing and examination methods and recommended literature;
- n. SAP/SLM: the student information system (*Student Lifecycle Management*);
- o. semester: the first (September - January) or second half (February - August) of an academic year;
- p. specialization: optional route of study within a degree programme indicating a deepening of the (inter/multi) disciplinary context of the programme;
- q. student statute: sets out the rights and responsibilities of students on the one hand, and of Vrije Universiteit Amsterdam on the other hand, including those derived from the law and those derived from university regulations. The Executive Board (CvB) officially confirms the student statute once its completeness has been approved by the University Student Council (USC);
- 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:
<https://www.vu.nl/en/study-guide/>;
- s. study monitor: dashboard for students and academic advisors with data of the student
(*studiemonitor*): and that provides insight into the student's study progress;
- t. subject: see 'unit of education';
- u. substituting course/unit of education: see under c (double degree programme). A course obtained at the other educational institute, within the context of cooperation, that is mentioned in the diploma supplement as such; not being an 'exemption';
- v. track: a study pathway within a broader Bachelor's or Master's degree programme, such as a fully English-language study pathway within a Dutch-language Bachelor's or Master's programme;
- w. thesis/internship work placement: scientific research, always resulting in a written report;
- x. unit of education: a unit of study of the programme within the meaning of the WHW;
- y. university: Vrije Universiteit Amsterdam;
- z. WHW: the Dutch Higher Education and Research Act (*Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek*);
- aa. workload: the workload of the unit of study to which an interim examination applies, expressed in terms of credits = EC (ECTS = European Credit and Transfer Accumulation System). The workload for 1 year (1,680 hours) is 60 EC.

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

2. Study programme structure

Article 2.1 Structure of academic year and units of education

1. The study programme will be offered in a year divided into two semesters.	Ordinance CvB, see Appendix III
2. Every semester consists of three consecutive periods. The first two periods each consist of eight weeks, and the final period consists of four weeks.	Ordinance CvB, see Appendix 3
3. A unit of education comprises 6 EC or a multiple thereof.	Ordinance CvB, see Appendix III
4. By way of exception to paragraph 3, the Executive Board may in special cases and on request of the Faculty Board, stipulate that a unit of study comprises 3 EC or a multiple thereof.	Ordinance CvB, see Appendix III

Article 2.2 Frame study programme

1. The Bachelor's 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 at an academic level	Ordinance CvB, see Appendix III
2. In the first year of the programme, the programme will offer at least fourteen contact hours a week, with the exception of holiday weeks and examination weeks.	Ordinance CvB, see Appendix III
3. In the second and third years of the programme, the programme will offer at least twelve contact hours a week, with the exception of holiday weeks and examination weeks.	Ordinance CvB, see Appendix III
4. Internationalization is included as part of the Bachelor's programme and reflected in one or more units of education.	Ordinance CvB, see Appendix III

Article 2.3. Sequence of the programme

1. Students will be admitted to the final project if conditions as stated in Article 9.1 (part B) are met.	Advice OLC, approval FGV
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3. Assessment and examination

Article 3.1 Signing up for education and interim examinations

1. Every student must sign up to participate in the units of education of the programme, the interim examinations and resits. The procedure for signing up is described in an annex to the Student Charter.	Ordinance CvB, see Appendix III
2. Signing up may only take place in the designated periods.	Ordinance CvB, see Appendix III

Article 3.2 Type of examination

1. At the examiner's request, the Examination Board may permit a different form of interim examination than is stipulated in the study guide.	Advice OLC, Approval FGV (7.13 I)
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Article 3.3 Oral interim examinations

1. An oral assessment is public unless the Examination Board determines otherwise.	Advice OLC; approval FGV (7.13 I and n)
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Article 3.4 Determining and announcing results

1. The examiner determines the result of a written interim examination within fifteen working days. By way of departure from that stipulated in the first clause, the marking deadline for theses 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 III
2. a. The examiner determines the result (i.e. mark) of an oral examination as soon as possible, but at the latest 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 a(n) (partial) interim examination at least five working days prior to the next (partial) interim examination opportunity, with the exception of weekly assignments.	Advice OLC; approval FGV (7.13 o)
3. In the case of assessments other than 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)

Article 3.5 Examination opportunities

1. a. Per academic year, two opportunities to take examinations will be offered for each unit of education. b. By way of exception to a., the options for retaking practical exercises, work placements and theses are detailed in the relevant work placement manual, teaching regulations or graduation regulations.	Ordinance CvB, see Appendix III
2. The most recent mark will apply in the event of a resit. A resit is allowed for both passed and failed units of study.	Ordinance CvB, see Appendix III
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 students an extra opportunity to sit an interim examination if they: a) lack only those credits to qualify for their degree; and b) have failed the interim examination during all the previously offered attempts unless participation in an interim 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 exercises 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.	Ordinance CvB, see Appendix III
5. If a unit of education is no longer offered in the following academic year and disappears from the curriculum, one opportunity will be provided to sit the interim examination(s) or parts thereof in the following academic year at the latest and a transitional arrangement for the subsequent period will be included in the programme-specific section of the teaching and examination regulation (part B).	Advice OLC, approval FGV (7.13 j)

Article 3.6 Marks

1. Partial marks are given on a scale from 1 to 10 with no more than one figure after the decimal point.	Ordinance CvB, see Appendix III
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2. A final mark between 5 and 6 will be rounded to the nearest whole number: final marks below 5.50 will be rounded down; final marks of 5.50 or higher will be rounded up. All other final marks will be expressed in whole or half marks. 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: <table><tr><th>From</th><th>To</th><th>Grade</th></tr><tr><td>1.00</td><td>1.24</td><td>1.0</td></tr><tr><td>1.25</td><td>1.74</td><td>1.5</td></tr><tr><td>1.75</td><td>2.24</td><td>2.0</td></tr><tr><td>2.25</td><td>2.74</td><td>2.5</td></tr><tr><td>2.75</td><td>3.24</td><td>3.0</td></tr><tr><td>3.25</td><td>3.74</td><td>3.5</td></tr><tr><td>3.75</td><td>4.24</td><td>4.0</td></tr><tr><td>4.25</td><td>4.74</td><td>4.5</td></tr><tr><td>4.75</td><td>5.49</td><td>5.0</td></tr><tr><td>5.50</td><td>6.24</td><td>6.0</td></tr><tr><td>6.25</td><td>6.74</td><td>6.5</td></tr><tr><td>6.75</td><td>7.24</td><td>7.0</td></tr><tr><td>7.25</td><td>7.74</td><td>7.5</td></tr><tr><td>7.75</td><td>8.24</td><td>8.0</td></tr><tr><td>8.25</td><td>8.74</td><td>8.5</td></tr><tr><td>8.75</td><td>9.24</td><td>9.0</td></tr><tr><td>9.25</td><td>9.74</td><td>9.5</td></tr><tr><td>9.75</td><td>10.0</td><td>10</td></tr></table>	From	To	Grade	1.00	1.24	1.0	1.25	1.74	1.5	1.75	2.24	2.0	2.25	2.74	2.5	2.75	3.24	3.0	3.25	3.74	3.5	3.75	4.24	4.0	4.25	4.74	4.5	4.75	5.49	5.0	5.50	6.24	6.0	6.25	6.74	6.5	6.75	7.24	7.0	7.25	7.74	7.5	7.75	8.24	8.0	8.25	8.74	8.5	8.75	9.24	9.0	9.25	9.74	9.5	9.75	10.0	10	Ordinance CvB, see Appendix III
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3. To pass a given course or unit, a final mark of 6 or higher is required.	Ordinance CvB, see Appendix III																																																									
4. The Examination Board can allow the use of symbols rather than numbers, for example; v(oldaan), g(oed), n(iet)v(ol)d(aan), etc. 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 III																																																									

Article 3.7 Exemption

1. At the written request of the student, the Examination Board may exempt a student from taking one or more examination components, if they: a) have either passed a unit of education at a university of applied sciences (HBO) or research university (WO) that is equivalent in terms of content and level; b) or have demonstrated through their work and/or professional experience that they have sufficient knowledge and skills with regard to the relevant unit of education.	Advice OLC; approval FGV (7.13 r)
2. The Bachelor's thesis is excluded from this exemption possibility.	Advice OLC; approval FGV (9.38 sub b)
3. a. A maximum of 60 EC of the curriculum can be accumulated through granted exemptions for one three-year bachelor programme. The substituting courses (courses obtained at another educational institute within the context of a double degree, see art. 1.2) are not included. b. This regulation does not apply if a student is (simultaneously) enrolled in multiple programmes, which lead to multiple degrees, where courses may be part of both	Advice OLC; approval FGV (9.38 sub b)

programmes. In such a case, the examination board may deviate from the regulations under a.	
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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
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. Within twenty working days after the announcement of the results of a written interim examination, but at least ten working days before the resit opportunity for that interim examination, the student can submit a request to inspect their 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 on VU.nl Dashboard or Canvas in all cases.	Advice OLC; approval FGV (7.13 p and 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 their own.	Advice OLC; approval FGV (7.13 q)
3. Students who meet the requirements stipulated in paragraph 2 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 within the regular timetable, on campus or online.	Advice OLC; approval FGV (7.13 p and q)

4. Honours programme

Article 4.1 Honours programme

1. Vrije Universiteit Amsterdam offers an honours programme for students who meet the admission requirements. The honours programme consists of units of education taken in addition to the standard curriculum.	Ordinance CvB, see Appendix III
2. The honours programme comprises 30 EC, a minimum of 12 EC of which consist of faculty or programme honours components and a minimum of another 12 EC consist of interfaculty honours components. The choices available to the student will be published on the website (www.vu.nl).	Ordinance CvB, see Appendix III
3. For admission to the honours programme, the student must have secured all credits from the first year by no later than 31 August of the relevant year, and have been awarded a weighted average mark of at least a 7.5.	Ordinance CvB, see Appendix III
4. Students who have met the requirements of the regular Bachelor's programme within the nominal duration of study, who have achieved a grade point average (GPA) of at least 7.5 for all components of the Bachelor's programme (excluding the honours components) and who have also met the requirements of the honours programme will receive a Bachelor diploma with a transcript indicating that they have successfully completed the honours programme.	Ordinance CvB, see Appendix III
5. First-year Bachelor's students can participate in honours components during the second semester, on the condition that they have earned 30 EC during the first	Ordinance CvB, see Appendix III

semester with a weighted average of at least a 7.5. First-year students can only participate in honours components that are open for first-year students.	
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5. Academic student counselling, recommendation on 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 a unit of education 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 their disposal in VU.nl Dashboard.	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 advisers	Advice OLC; approval FGV (7.13 u)

Article 5.2 Recommendation on continuation of studies

1. The faculty board will issue every student on a full-time Bachelor's programme with a recommendation on continuation of their 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 III
2. Prior to 1 February, the student will receive an overview of their results.	Ordinance CvB, see Appendix III
3. Students who have not completed enough credits, will receive a warning with the overview (see paragraph 2) stating that if insufficient improvement in their performance is forthcoming by the end of the academic year, they will be advised not to continue their studies. These students will also be advised to plan a meeting with an academic adviser.	Advice OLC (7.13 f)
4. If the recommendation at the end of the academic year is negative the provisions of Article 5.3 apply.	Advice OLC (7.13 f)
5. A recommendation will not be issued if the student terminates their enrolment before 1 February of their 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 a positive recommendation on continuation of studies. A recommendation on continuation of studies will not be issued if the student demonstrates that they have not been able to meet the standard described in Article 2.1 of the Higher Education and Research (Implementation) Act (<i>Uitvoeringsbesluit WHW</i>) due to personal circumstances. In order to obtain a positive recommendation on continuation of studies, the student must have obtained at least 42 EC from first year courses by the end of the first year of enrolment.	Ordinance CvB, see Appendix III
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 them 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 their 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.	Ordinance CvB, see Appendix III

No recommendation will be issued to students if they demonstrate that they once again did not meet the standard as a consequence of personal circumstances.	
3. Along with the information referred to in the previous paragraph, students will also be informed of the possibility of being heard by the BSA committee and of how they can apply for such a hearing.	Ordinance CvB, see Appendix III
4. As soon as possible (no more than ten working days) after the end of the hearing and after the BSA committee has issued its advice, the faculty board will issue the definitive recommendation on continuation of studies.	Ordinance CvB, see Appendix III
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 III
6. Students who receive a binding negative recommendation on continuation of studies may therefore not enrol in the same Bachelor's programme or Bachelor's programme(s) with the same first year as defined in Article 14.1.2 of section B for a period of three years.	Ordinance CvB, see Appendix III

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 described in Article 2.1 of the Higher Education and Research (Implementation) Act, 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 Article 2.1 of the Higher Education and Research (Implementation) Act, should occur, students must notify the academic adviser office as soon as possible, providing details of: - the period in which the circumstance occurs or occurred; - a description of the circumstance and its seriousness; - the extent to which they cannot or could not participate in instruction/classes or an interim examination. It is students' responsibility to submit documentary evidence to substantiate their report.	Advice OLC (7.13)
3. If required, the academic adviser 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 Facilities for students with a disability

1. A student with a disability can submit a request via VU.nl Dashboard to qualify for one or more special facilities with regard to teaching, practical exercises and interim examinations. These facilities 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 medical 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 a psychological evaluation.	Advice OLC; approval FGV (7.13 m)

4. The faculty board, or the responsible person on behalf of the faculty board, decides on teaching facilities and facilities regarding logistics. The Examination Board will decide on requests for facilities 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 can make an appointment with the academic adviser to discuss the details of the facilities.	Advice OLC; approval FGV (7.13 m)
6. A request for one or more facilities can be refused if it would place a disproportionate burden on the organization or the resources of the faculty or university were it upheld. Any such refusal will be substantiated.	Advice OLC; approval FGV (7.13 m)
7. If the disability justifies an extension of the interim examination time, the responsible person on behalf of the Examination Board will register in SAP 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. The student can consult the study monitor to check which facilities have been granted to them.	Advice OLC; approval FGV (7.13 m)
8. The decision as referred to in paragraph 4 is valid for a maximum period of one year with the exception for chronic diseases and disabilities.	Advice OLC; approval FGV (7.13 m)

6. Hardship clause

Article 6.1 Hardship clause

In instances not regulated by the Teaching and Examination Regulations or in the event of demonstrable extreme unreasonableness or unfairness, the faculty board responsible for the study programme will decide, unless the matter concerned is the responsibility of the Examination Board.	Advice OLC; approval FGV (9.38 sub b)
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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)
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Article 7.1a Deviant size of units of education

By way of derogation from art. 2.1.3, the units listed below have a deviant size of 3 EC:			Approval OLC (art. 7.13 sub e), approval CvB
Course code	Name course	EC	
XB_0006	Introduction to Mathematical Modelling, Latex and Mathematica	3	
X_400629	Introduction to Programming (Python)	3	
X_400652	History of Science	3	
X_400433	Philosophy and Ethics	3	

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 unit of education are specified in the study guide.	Advice OLC; approval FGV (7.13 l)

Article 7.3 Academic student counselling

1. The programme offers the following counselling in addition to the student counselling mentioned in Section A: - Not applicable	Advice OLC; approval FGV (7.13 u)
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8. Further admission requirements

Article 8.1 Additional previous education requirements

1. Students who meet the previous education requirements as stipulated in the current 'Regulations on Registrations and Admissions in Higher Education' (<i>Regeling Aanmelding en Toelating Hoger Onderwijs</i>) (RATHO, OCW)) will gain access to the programme.	Legal provision
2. Students who do not meet the previous education requirements as stipulated in 'Regulations on Registrations and Admissions in Higher Education' currently in force may still be admitted to the programme by successfully completing one or more of the following interim examinations: - Not applicable	Exception in WHW: advice OLC
3. Sufficient command of the Dutch language can be evidenced by successful completion of: - Not applicable	Ordinance CvB, see Appendix III

4. Sufficient command of the English language can be evidenced by successful completion of: - IELTS (academic) 6.5; - TOEFL paper-based test 580; TOEFL internet-based test 92; - VU English Language Proficiency Test: TOEFL ITP 580; - Cambridge Certificate of Proficiency in English (CPE) or Cambridge Certificate of Advanced English (CAE): grade A, B or C; - Official secondary education examination: VWO English language and literature. Those who have completed English-language education in Canada, the USA, the UK, Ireland, New Zealand or Australia and those who already hold an English-language Bachelor's degree are exempted from the language requirement.	Advice OLC; approval FGV (9.38 sub b)
5. Anyone who does not meet the requirements for previous education but who has passed the propaedeutic examination 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.	Advice OLC; approval FGV (9.38 sub b)
6. Applicants with a diploma from a country other than the Netherlands will meet the previous education requirements 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 Appendix V.	

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 Article 7.29 of the WHW. The entrance examination concerns the following subjects at final pre-university examination level: - Mathematics B equivalent to final examination university entry level (VWO), - a command of English equivalent to pre-university final-exam level (VWO).	Advice OLC; approval FGV (9.38 sub b)
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)

9. Interim examinations and results

Article 9.1 Sequence of interim examinations

1. Students may participate in the interim examinations and practical exercises of the units of education below only if they have passed the interim examination or examinations for the units of education mentioned hereinafter: 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 course Project Mathematics if they have passed the Study and Career course.	Advice OLC; approval FGV (7.13 h, 7.13 s/t)
2. Students may be admitted to the following specializations only if they have passed the interim examinations of the following units of education: Not applicable	Advice OLC; approval FGV (7.13 h, 7.13 s/t)

3. Students will only be admitted to the final project/thesis if they meet the following conditions after the results of the interim exams in December of the current academic year have been taken into account: they have earned at least 120 of the full 180 credits.	Advice OLC; approval FGV (7.13 h, 7.13 s/t)
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Article 9.2 Validity period for results

1. The validity period of the interim examinations and exemptions from interim examinations below is limited as follows: See Article 3.8 of the Teaching and Examination Regulations, section A. No further specific provisions.	Advice OLC; approval FGV (7.13 k)
2. A student may request the Examination Board to extend the validity of an exam. If the student's knowledge is demonstrably outdated, or if the student's skills and insights 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

Section B2: Programme specific – content of programme

10. Programme objectives, specializations, exit qualifications and language

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 Tracks and/or specializations

The programme has the following majors and tracks (for students enrolled in 2018 or later): a) Major Pure Mathematics i) Track Algebra and Geometry ii) Track Analysis and Dynamical Systems iii) Track Probability and Statistics b) Major Applied Mathematics i) Track Biomedical Mathematics ii) Track Computer Science iii) Track Data Science iv) Track Optimization and Economics	Approval OLC; (7.13 b)
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Article 10.3 Exit qualifications

1. Upon completing the Bachelor's programme in Mathematics, the student is expected a) i) 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; ii) 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; iii) (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); b) i) 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; ii) 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; iii) to possess the ability to manage a small research project and to perform mathematical or applied mathematical research under close supervision; - c)	Approval OLC (7.13 c)
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i) to be capable of strict reasoning in the way that is characteristic for mathematics, and in particular of giving mathematical proofs and abstractions; ii) 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; d) i) to be able to communicate about mathematics and its applications, both orally and in writing, to audiences with varying mathematical backgrounds; e) i) to have the ability to acquire new mathematical knowledge, and to collect mathematical information, for example through the internet, literature study, or research; ii) 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.	
2. Without prejudice to the provisions of paragraph 1, a graduate of the track or specialization will have the following knowledge and understanding in the field of: Not applicable.	Approval OLC (7.13 b)
3. Language proficiency may be taken into account in the assessment of (interim) examinations	Approval OLC (7.13 c)

Article 10.4 Language of instruction and language test

1. The language of instruction is English.	Approval OLC (9.18)
2. The 'Gedragcode vreemde taal' (Code of conduct foreign languages) applies.	Ordinance CvB, see Appendix III
3. At the start of the first year of study every student must complete a diagnostic language test (VU_ELT) in the language of instruction of the programme.	Advice OLC; (7.13 a)
4. Any student who does not achieve a pass in the language test must take the 'Refresher Course' organized by the Language Desk (Taalloket).	Approval OLC (7.13 c)
5. The language test is part of the following unit of education: Not applicable.	Approval OLC (7.13 c)

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 III
(4) Philosophy of Science and/or History of Science (5) Academic English	Advice OLC; (7.13 a)
2. 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;	Advice OLC; (7.13 a)

(6) X_400433: Philosophy and Ethics; (7) XB_0049 : Mathematical Statistics; (8) XB_0027: Mathematical Modelling of Stochastic Systems.	
3. Internationalization: Not applicable	Advice OLC (art. 7.13 lid 2 WHW)

Article 11.2 Major

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

Article 11.3 Compulsory units of education of the major

A detailed description per unit of education can be found in the Study Guide.

Article 11.3a | Year 1

Year 1				
Name of unit of education	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	VU_ELT	0	000	
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

Year 2				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Dynamical Systems	X_400637	6	300	
Fourier Analysis	XB_0005	6	200	
Mathematical Modelling of Stochastic Systems	XB_0027	6	200	
Mathematical Statistics	XB_0049	6	300	
Numerical Methods	X_401039	6	300	
Project Mathematics	XB_0067	6	300	

[Article 11.3c | Year 2 - Major Pure Mathematics](#)

<i>Year 2 – Major Pure Mathematics</i>				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Complex Analysis	X_400386	6	300	
Rings and Fields	X_400630	6	300	
Topology	X_400416	6	300	

<i>Year 2 – Major Pure Mathematics – Track Algebra and Geometry</i>				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Galois Theory	XBU_417008	6	300	

<i>Year 2 – Major Pure Mathematics – Track Analysis and Dynamical systems</i> (*): one out of two				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Galois Theory (*)	XBU_417008	6	300	
Statistical Data Analysis (*)	X_401029	6	300	

<i>Year 2 – Major Pure Mathematics – Track Probability and Statistics</i>				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Statistical Data Analysis	X_401029	6	300	

[Article 11.3d | Year 2 – Major Applied Mathematics](#)

<i>Year 2 – Major Applied Mathematics</i>				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Statistical Data Analysis	X_401029	6	300	

<i>Year 2 – Major Applied Mathematics – Track Biomedical Mathematics</i> (*): one out of two				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Biochemistry	XB_0030	6	200	
Complex Analysis (*)	X_400386	6	300	
Genetics	AB_1135	6	100	
Topology (*)	X_400416	6	300	

<i>Year 2 – Major Applied Mathematics – Track Computer Science</i>				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Computer Networks	X_400487	6	100	
Computer Organization	XB_40009	6	100	
Introduction to Programming (Java)	X_400634	6	100	

<i>Year 2 – Major Applied Mathematics – Track Data Science</i>				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Business Intelligence and Analytics	E_IBK3_BIA	6	300	
Databases	X_401008	6	200	
Introduction to Programming (Java)	X_400634	6	100	

<i>Year 2 – Major Applied Mathematics – Track Optimization and Economics</i> (*): one out of two				
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Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Complex Analysis (*)	X_400386	6	300	
Operations Research I	E_EOR2_OR1	6	200	
Operations Research II	E_EOR2_OR2	6	200	
Topology (*)	X_400416	6	300	

Article 11.3e | Year 3

Year 3				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Bachelor Project Mathematics	X_400581	12	400	
History of Science	X_400652	3	200	
Philosophy and Ethics	X_400433	3	200	

Article 11.3f | Year 3 - Major Pure Mathematics

Year 3 – Major Pure Mathematics – Track Algebra and Geometry (*): at least one out of four				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Differential Topology (*)	XB_0068	6	300	
Functional Analysis (*)	XB_0079	6	300	
Modules and Categories (*)	XBU_0016	6	300	
Partial Differential Equations (BSc) (*)	X_400163	6	300	

Year 3 – Major Pure Mathematics – Track Analysis and Dynamical systems (*): at least one out of three				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Differential Topology (*)	XB_0068	6	300	
Functional Analysis (*)	XB_0079	6	300	
Partial Differential Equations (BSc) (*)	X_400163	6	300	

Year 3 – Major Pure Mathematics – Track Probability and Statistics (*): at least one out of two				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Bayesian Statistics (BSc) (*)	XBU_400468	6	300	
Functional Analysis (*)	XB_0079	6	300	

Article 11.3g | Year 3 - Major Applied Mathematics

Year 3 – Major Applied Mathematics – Track Biomedical Mathematics (*): at least one out of three				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Bayesian Statistics (BSc) (*)	XBU_400468	6	300	
Functional Analysis (*)	XB_0079	6	300	
Partial Differential Equations (BSc) (*)	X_400163	6	300	

Year 3 – Major Applied Mathematics – Track Computer Science (*): at least one out of three				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Bayesian Statistics (BSc) (*)	XBU_400468	6	300	
Databases (*)	X_401008	6	200	
Partial Differential Equations (BSc) (*)	X_400163	6	300	

<i>Year 3 – Major Applied Mathematics – Track Data Science</i>				
(*) : at least one out of two				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Bayesian Statistics (BSc) (*)	XBU_400468	6	300	
Machine Learning (*)	X_400154	6	300	

<i>Year 3 – Major Applied Mathematics – Track Optimization and Economics</i>				
(*) : at least one out of four				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Applied Analysis: Financial Mathematics (*)	X_400076	6	400	
Bayesian Statistics (BSc) (*)	XBU_400468	6	400	
Mathematical Economics II (*)	E_EOR2_ME2	6	200	
Operations Research III (*)	E_EOR3_OR3	6	300	

Article 11.4 Elective units of education of the major

<i>Year 3 electives</i>				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Applied Analysis: Financial Mathematics	X_400076	6	400	
Automata and Complexity	X_401049	6	300	
Bayesian Statistics	XBU_400468	6	300	
Biomedical Mathematics	X_401056	6	300	
Complex Analysis	X_400386	6	300	
Differential Geometry (BSc)	X_400631	6	300	
Differential Topology	XB_0068	6	300	
Functional Analysis (BSc)	XB_0079	6	300	
Galois Theory	XBU_417008	6	300	
Machine Learning	X_400154	6	300	
Markov Chains	XBU_418085	6	300	
Mathematical Systems and Control Theory(*)	X_400180	6	400	
Measure Theory	X_401028	6	300	
Modules and Categories	XBU_0016	6	300	
Non-linear Dynamical Systems	XB_0098	6	400	
Number Theory	X_400632	6	300	
Partial Differential Equations (BSc)	X_400163	6	300	
Representation Theory	XBU_417004	6	300	
Rings and Fields	X_400630	6	300	
Statistical Data Analysis	X_401029	6	300	
Topology	X_400416	6	300	
(*) : not in 2022-23, taught every other year				

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 at least 30 EC of elective units of education.	Ordinance CvB, see Appendix III
2. For this elective period, the student can take: a) a minor (a coherent package of related units of education) b) individual choice of at least five units of education 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. c) Units of education at a university abroad. For this, the same requirements apply as indicated above. In addition, at a university abroad, students can include maximum one unit of education (6 EC) at Master's level (level 400 or higher) into their programme; this requires permission from the programme concerned. The unit of education concerned can then no longer be included in the student's Master's programme.	Ordinance CvB, see Appendix III
3. Prior consent must be obtained from the Examination Board.	Ordinance CvB, see Appendix III

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 III
2. The student can take one of the following minors without prior consent from the Examination Board: - the minor Pure Mathematics; - the minor Applied Mathematics; - Educational minor.	Advice OLC; (7.13a)

<i>Minor Pure Mathematics – Track Algebra and Geometry</i>				
(*): at least two out of three				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Differential Geometry (BSc) (*)	X_400631	6	300	
Number Theory (*)	X_400632	6	300	
Project Computer Assisted Proofs	XB_0039	6	300	
Representation Theory (*)	XBU_417004	6	300	

<i>Minor Pure Mathematics – Track Analysis and Dynamical systems</i>				
(*): at least two out of three				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Differential Geometry (BSc) (*)	X_400631	6	300	
Measure Theory (*)	X_401028	6	300	
Non-linear Dynamical Systems (*)	XB_0098	6	400	
Project Computer Assisted Proofs	XB_0039	6	300	

<i>Minor Pure Mathematics – Track Probability and Statistics</i>				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Measure Theory	X_401028	6	300	
Markov Chains	XBU_418085	6	300	

Project Computer Assisted Proofs	XB_0039	6	300	
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<i>Minor Applied Mathematics – Track Biomedical Mathematics</i> either (*) or both of (**)				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Biomedical Mathematics	X_401056	6	300	
From Protein to Cell (**)	AB_1052	6	300	
Mechanics and thermodynamics in the cell (*)	X_422589	6	400	
Metabolomics (**)	AB_1291	6	300	
Principles of Bioinformatics	X_401094	6	300	
Project Biomedical Mathematics	XB_0038	6	300	

<i>Minor Applied Mathematics – Track Computer Science</i> (*): at least one out of three				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Data Structures and Algorithms for CS	XB_0091	6	100	
Databases (*)	X_401008	6	200	
Equational Programming (*)	X_401011	6	300	
Pervasive Computing (*)	XB_40008	6	100	
Project Computer Assisted Proofs	XB_0039	6	300	

<i>Minor Applied Mathematics – Track Data Science</i> (*): at least one out of two				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Data Analytics and Privacy (*)	R_DAP	6	300	
Data Structures and Algorithms for AI	XB_0043	6	200	
Data Wrangling	XB_0014	6	300	
Information Retrieval (*)	X_400435	6	300	

<i>Minor Applied Mathematics – Track Optimization and Economics</i>				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Mathematical Economics I	E_EOR2_ME1	6	200	
Measure Theory	X_401028	6	300	
Project Computer Assisted Proofs	XB_0039	6	300	

13. Honours programme

Article 13.1 Honours components

The components of the honours programme offered by the faculty or the programme are chosen by the honours student in consultation with the study advisor.

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13)
<i>Mathematics honours Components</i>				
Mathematical Statistics*	X_HP0049	3	400	
Topology*	X_HP400416	3	400	
Rings and Fields*	X_HP400630	3	400	
Number Theory*	X_HP400632	3	400	
Dynamical Systems*	X_HP400637	3	400	

Numerical Methods*	X_HP401039	3	400
*star variants are extensions of regular courses			
<i>Science Faculty Honours Courses</i>			
Evolutionary Origin of Life and its Driving Forces	A_HP001	6	400
Communication and Innovation in Health and Life Sciences	A_HP002	6	400
Five O'Clock Neurosciences	A_HP003	6	400
Nutrition for Healthy Growth and Development	A_HP004	6	400
Diversity in Genetic Research	A_HP005	6	400
Climate Repair	A_HP006	6	400
Project Science and Tech-based Entrepreneurship	A_HP007	6	400

14. Binding recommendation on continuation of studies (BSA)

Article 14.1 Binding (negative) recommendation

1. In order to obtain a positive binding recommendation on continuation of studies, the student must have obtained at least 42 EC of first year's courses by the end of the first year of enrolment.	Advice OLC (7.13 f)
2. Students who receive a binding negative recommendation on continuation of studies cannot enroll in the following Bachelor's programme(s) offered by the Faculty during the subsequent three academic years: - Mathematics.	Advice OLC (7.13 f)
3. For students taking part-time programmes there will be no formal recommendation on continuation of studies.	Advice OLC (7.13 f)

15. Evaluation and transitional provisions

Article 15.1 Evaluation of the education

1. The education provided in this programme is evaluated in accordance with the document 'Kwaliteitszorg Onderwijs BETA'.	Approval OLC (7.13 a1)
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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: - The course XB_0067 Project Mathematics is a merger of the discontinued (offered last time in 2020-21) XB_0028 Project Applied Mathematics and XB_0029 Project Pure Mathematics. Students who have earned the credits of XB_0028 or XB_0029 are exempted from the compulsory course XB_0067. - The course XB_0038 Project Biomedical Mathematics up to 2019-20 existed under the code/name X_401062 Workshop Mathematical Modelling. The credits of X_401062 are equivalent to the credits of XB_0038. - The discontinued course AB_1053 Molecular Cell Biology was part of the minor Applied Mathematics, track Biomedical Mathematics up to 2021-22. The credits of AB_1053 count towards this minor and track as an alternative to (*) and (**) in Article 12.2. - The course X_400614 Data Structures and Algorithms, part of the minor Applied Mathematics up to 2021-22, is replaced by XB_0091 Data Structures and Algorithms for	Advice OLC (7.13 a)
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CS in the track Computer Science and by XB_0043 Data Structures and Algorithms for AI in the track Data Science. The credits of the three courses are equivalent.	
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Approval of the Programme Committee of the curriculum structure (submitted via UAS), on 09-12-2021.

Advice and approval by the Programme Committee (with the exception of the curriculum structure), on 17-05-2022.

Approved by the Faculty Joint Assembly, on 28-06-2022.

Adopted by the board of the Faculty of Sciences, on 01-07-2022.

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

Based on Article 7.13, paragraph 2, of the WHW and other Articles of the Act.

Section A: Faculty section

2. Study programme structure	
Article 2.1 Structure of academic year and units of education	7.13 paragraph 2 sub e
Article 2.2 Frame study programme	7.13 paragraph 2 sub a, e, x
3. Assessment and examination	
Article 3.2 Type of examination	7.13 paragraph 2 sub h, l, j
Article 3.3 Oral interim examinations	7.13 paragraph 2 sub l, n
Article 3.4 Determining and announcing results	7.13 paragraph 2 sub o
Article 3.5 Examination opportunities	7.13 paragraph 2 sub h, j
Article 3.7 Exemption	7.13 paragraph 2 sub r
Article 3.8 Validity period for results	7.13 paragraph 2 sub k
Article 3.9 Right of inspection and post-examination discussion	7.13 paragraph 2 sub p, q
4. Honours programme	
Article 4.1 Honours programme	7.13 paragraph 2 sub v
5. Academic student counselling, recommendation on continuation of studies and study progress	
Article 5.1 Administration of study progress and academic student counselling	7.13 paragraph 2 sub u
Article 5.2 Recommendation on continuation of studies	7.13 paragraph 2 sub f
Article 5.3 Binding (negative) recommendation on continuation of studies (BSA)	7.13 paragraph 2 sub f
Article 5.4 Personal circumstances	7.13 paragraph 2 sub f
Article 5.5 Facilities for students with a disability	7.13 paragraph 2 sub m

Section B1: Programme specific – general provisions

7. General programme information and characteristics	
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
8. Further admission requirements	
Article 8.1 Additional previous education requirements	7.25, paragraph 4
Article 8.2 Colloquium doctum (entrance examination)	7.29, paragraph 2
9. Interim examinations and results	
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

10. Programme objectives, tracks/specializations and exit qualifications	
Article 10.1 Programme objective	7.13 paragraph 2 sub a
Article 10.2 Tracks and/or specializations	7.13 paragraph 2 sub a
Article 10.3 Exit qualifications	7.13 paragraph 2 sub b, c
Article 10.4.1 Language of instruction	9.18 (implementation expected in 2020)
Article 10.4.3 Language test	7.13 paragraph 2 sub a, c
11. Curriculum structure	
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 units of education of the major	7.13 paragraph 2 sub a
Article 11.4 Elective units of education 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 exercises and tutorials	7.13 paragraph 2 sub d
12. Electives	
Article 12.1 Elective period	7.13 paragraph 2 sub a

Article 12.2 Minors	7.13 paragraph 2 sub a
13. Honours programme	
Article 13.1 Honours components	7.13 paragraph 2 sub a
14. Binding recommendation on continuation of studies (BSA)	
Article 14.1 Binding (negative) recommendation	7.13 paragraph 2 sub f
15. Evaluation and transitional provisions	
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 advisory and approval rights of Programme Committees (OLC) and Faculty Joint Assembly (FGV)

(English below)

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 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 <u>binnen</u> 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.				

Afkortingen:

FGV: Facultaire Gezamenlijke Vergadering

OplC: Opleidingscommissie

I: Instemmingsrecht

A: Adviesrecht

Appendix II (English) Overview of advisory and approval rights of Programme Committees (OLC) and Faculty Joint Assembly (FGV)

Disclaimer: this is a translation which only serves as an aid. No rights may be derived from it. The Dutch document prevails.

Article 7.13, paragraph 2, of the Higher Education and Research Act	FGV		OplC	
	I	A	I	A
a. content of the programme and associated examinations				
a1. the manner in which teaching and education in the relevant programme are evaluated				
b. the content of the specializations offered as part of the programme				
c. the programme's final attainment levels with regard to the knowledge, understanding and skills				
d. where applicable, the design of practical exercises				
e. the workload of the programme and of each of its constituent educational units				
f. the detailed rules referred to in Article 7.8b, sixth paragraph, and Article 7.9, fifth paragraph (recommendation on continuation of studies)				
g. the Master's programmes to which Article 7.4a, eighth paragraph, applies (elevated workload)				
h. the number and sequence of interim examinations and the times at which these can be taken				
i. the full-time, part-time or work-study structure of the programme				
j. where necessary, the order, and the periods in which and the number of times per academic year that the opportunity to sit interim examinations and final degree assessments is given				
k. where necessary, the period of validity for pass grades awarded for interim examinations, notwithstanding the authority of the Examination Board to extend this period of validity				
l. whether interim examinations are administered in oral, written or another form, notwithstanding the authority of the Examination Board to decide otherwise				
m. the way in which students with a disability or chronic health condition are given a reasonable opportunity to take the interim examinations				
n. the public nature of oral interim examinations, subject to the right of the Examination Board to determine otherwise in special cases				
o. the period within which the results of an interim examination must be announced, together with details of whether this period can be altered and if so in what way				
p. the way in which and the period within which students who have taken an interim examination are given the opportunity to inspect their marked work				
q. the way in which and the period within which information can be provided about the questions asked and exercises given in the framework of a written interim examination and about the standards used for assessment				
r. the grounds on which the Examination Board could grant exemption from the taking of one or more interim examinations to students who have previously passed interim examinations in higher education or have acquired knowledge or skills outside higher education				
s. where necessary, the stipulation that students must pass certain interim examinations as a condition for admission to other interim examinations				
t. where necessary, the obligation to take part in certain practical exercises with a view to admission to the interim examination in question, subject to the authority of the Examination Board to grant exemption from this obligation, with or without the imposition of alternative requirements				
u. the monitoring of academic progress and individual student support and guidance				
v. where applicable, the manner in which students are selected for a special track within a programme as referred to in Article 7.9b (excellence track within a programme)				
x. the actual design of the education provided				
<i>All other matters that are regulated in the Academic and Examination Regulations but which are not mentioned as such in Article 7.13 of the Higher Education and Research Act under points a to x.</i>				

Abbreviations used:

FGV: Faculty Joint Assembly
 OplC: Programme Committee
 I: right of approval
 A: right of advice

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

Section A, Article:	Concerns:	CvB ordinance / guideline
2.1.1, 2.1.2	Year planning two semesters 8-8-4 (uniform year calendar VU-UvA)	29-9-2008 (period 2009-2015) 22-05-2014 (period 2016-2025)
2.1.3, 2.1.4	Fixed nr of EC	Bachelor-richtlijn, revised on 6 June 2017
2.2.1	Setup of the programme	Bachelor-richtlijn, revised on 6 June 2017
2.2.2, 2.2.3	Planning academic year (number of contact hours)	Bachelor-richtlijn, revised on 6 June 2017
2.2.4	Internationalization	CvB ordinance, following the advice of the Internationalization Board, in December 2008 and included in the IP
3.1.1, 3.1.2	Signing up for education and interim examinations	CvB ordinance 30-09-2010, prior consent USR
3.4.1	Determination and publication of the results (1) Grading deadline exams ten working days (2) Theses twenty working days	(1) Bachelor-richtlijn, revised on 6 June 2017 (2) Quality demand 11 from the VU-wide assessment policy, CvB ordinance 15-05-2012
3.5.1	Two possibilities to take examinations	Bachelor-richtlijn, revised on 6 June 2017
3.5.2	Resit: Most recent grade is valid A pass can be retaken	Taken from the UvA guidelines, as part of the harmonization, CvB ordinance 24-02-2014
3.5.4	One-time extra resit in relation to examination requirement	Included in (prior) model OER 16-17 following a request from O&O committee and adopted by CvB on 28-10-2015
3.6	Grades	CvB ordinance 30-09-2010, with University council's consent. As a result of harmonization UvA, the guideline: 5.5 is a pass, has been added. CvB ordinance 24-02-2014.
4.1	Honours programme	Joint CvB ordinance UvA-VU, 28-10-2013 Revised 'Regeling VU-UvA Honoursprogramma' on 27-11-2018
5.2.1	Recommendation on continuation of studies (BSA) end of first year	BSA kaderregeling ordinance CvB 18-01-2010, consent USR on OER 2016-2017 Kaderregeling revised on 12-09-2017
5.2.2	Formal warning before February 1st	BSA kaderregeling ordinance CvB 18-01-2010, consent USR on OER 2016-2017 Kaderregeling revised on 12-09-2017
5.3	Binding (negative) study advice	BSA kaderregeling ordinance CvB 18-01-2010, consent USR on OER 2016-2017 Kaderregeling revised on 12-09-2017
8.1.3	Application and Registration Regulation (RAI)	CvB ordinance 8-10-2019 (annually)
10.4.2	'Gedragscode vreemde taal' (Code of conduct for foreign languages)	CvB ordinance 20-07-2009
11.1.1	Academic development	Bachelor-richtlijn, revised on 6 June 2017
11.2	Major	Bachelor-richtlijn, revised on 6 June 2017
12.1	Elective period (first semester, third year)	Bachelor-richtlijn, revised on 6 June 2017
12.2.1	Participation in university minor	CvB ordinance Profileringsruimte 22-11-2010

Appendix IV Article 2.1 of the Higher Education and Research (Implementation) Act (Uitvoeringsbesluit)

(English below)

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:

1. 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,

2. bij hogescholen: de medezeggenschapsraad, deelraad, studentencommissie of opleidingscommissie.

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.

h. andere in de onderwijs- en examenregeling, bedoeld in artikel 7.13 van de wet, op grond van artikel 7.13, tweede lid, onderdeel f, van de wet, vast te leggen persoonlijke omstandigheden,

i. andere dan in de onderdelen a tot en met h bedoelde persoonlijke omstandigheden die, indien zij door het instellingsbestuur niet in de beoordeling zouden worden betrokken, zouden leiden tot een onbillijkheid van overwegende aard.

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 IV (English) Article 2.1 of the Higher Education and Research (Implementation) Act
Entered into force on 1 June 2018

Disclaimer: This is a translation which only serves as an aid. No rights may be derived from it. The Dutch document prevails.

1. The extenuating personal circumstances referred to in Article 7.8b, paragraph 3 and 7.9, paragraph 3 of the Act (WHW) are limited to:

- a. illness of the person concerned,
- b. physical, sensory or other impairment of the person concerned,
- c. pregnancy of the person concerned,
- d. extenuating family circumstances,
- e. membership, including the chairmanship of:

- 1. universities: the university council, faculty council, the body established under the participation regulation referred to in Article 9.30, paragraph 3, or Article 9.51, paragraph 2, of the Act, the programme management or the programme committee, or membership on the board of a foundation whose bylaws allow for the exploitation of facilities belonging to the student services, or an equivalent body with regard to its activities in the opinion of the board of the institution,
- 2. universities of applied sciences: the participation council, district council, student committee or programme committee,

- f. other circumstances to be designated by the board of the institution in the regulation as referred to in Article 7.8b, paragraph 6, and Article 7.9, paragraph 5, of the Act in which the person concerned engages in activities within the framework of the organization and the administration of the affairs of the institution,
- g. membership on the board of a student organization of a certain size with full legal capacity, or a similar organization of a certain size, whose primary task regards general societal interest and which actually develops activities for this purpose,
- h. other personal circumstances set out in the Teaching and Examination Regulations as referred to in Article 7.13 of the Act, pursuant to Article 7.13, paragraph 2, clause f of the Act,
- i. personal circumstances other than those referred to in a – h above which, if overlooked by the governing bodies of the institution, would lead to an obviously unfair outcome.

2. The institutional board may, for the purposes of the first paragraph, part g, establish specific rules regarding the maximum number of eligible board members per organization per academic year, as well as the eligible administrative offices.

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

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

Appendix VI Addendum Teaching and Examination Regulations Bachelor's degree programmes

Several articles for the 2022-2023 academic year will be temporarily suspended or amended as a result of the consequences of the measures to stop the spread of COVID-19. These amendments apply exclusively to the teaching and examination regulations mentioned below.

Addendum pertaining to the 2022-2023 Teaching and Examination Regulations

Teaching and Examination Regulations for Bachelor's students, Section B1: Programme-specific section

Article 8.1 Additional prior education requirements

Supplementary to paragraph 5, students from institutes of higher professional education (HBO) who are preparing for the first-year examination will be admitted to the Bachelor's programme, provided that: • The student can provide a positive advisory on completion from his/her HBO institution, which must be provided to Vrije Universiteit Amsterdam (VU) by no later than 1 August 2022. • The student must still pass no more than one teaching unit of the first year of HBO, or in the case that more than one teaching unit must still be passed, these must be worth no more than 6 EC credits. If the student has not passed the first-year examination of an HBO Bachelor's programme at the latest by 31 December 2022, the student's registration for a Bachelor's programme at Vrije Universiteit Amsterdam will be terminated.	Based on additional Section 7:37e WHW University Student Council's advice on policy (9:33a WHW, second paragraph) Advice of the OLC on each programme via the Teaching and Examination Regulations
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