

Teaching and Examination Regulations

Faculty of Science

Bachelor's programme in Mathematics

Academic year 2023-2024

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.	Advice OLC, approval FGV (9.38 sub b)
2. These Regulations enter into force on 1 September 2023.	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. 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';
- c. EC (European Credit): a course credit with a workload of 28 hours of study;
- d. examination: an assessment of the student's knowledge, understanding and skills relating to a unit of education. The assessment is expressed in terms of a final mark. An examination may consist of one or more partial examinations. A resit always covers the same material as the original examination;
- e. 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;
- f. final examination: a bachelor's programme consists of a propaedeutic examination and a bachelor's examination;
- g. 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;
- h. period: a part of a semester;
- i. 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

- j. programme:
 - participating in and completing a work placement;
 the totality and cohesion of the units of education, teaching activities/methods, contact hours, testing and examination methods and recommended literature;
- k. SAP/SLM: the student information system (*Student Lifecycle Management*);
- l. semester: the first (September - January) or second (February - August) half of an academic year;
- m. specialisation: optional route of study within a degree programme indicating a deepening of the context of the programme (e.g. interdisciplinary or multidisciplinary);
- n. 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);
- o. 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://studiegids.vu.nl/en#/>;
- p. study monitor: dashboard for students and academic advisors with data of the student (*studiemonitor*); and that provides insight into the student's study progress;
- q. subject: see 'unit of education';
- r. substituting course/unit of education: see under b (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';
- s. thesis: a unit comprising research into the literature and/or contributing to scientific research, always resulting in a written report;
- t. 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;
- u. unit of education: a unit of study of the programme within the meaning of the WHW;
- v. university: Vrije Universiteit Amsterdam;
- w. WHW: the Dutch Higher Education and Research Act (Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek);
- x. workload: the workload of the unit of education to which an 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.

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 Setup of programme

1. All Bachelor's programmes consist of at least the following components: a. Academic core or academic development of at least 24 ECs b. Major/compulsory components of at least 90 ECs c. Elective components of study of at least 30 ECs	Ordinance CvB, see Appendix III
2. In the first year of the programme, the programme will offer at least fourteen contact hours a week.	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.	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

3. Assessment and examination

Article 3.1 Signing up for education and examinations

1. Every student must sign up to participate in the units of education of the programme, the examinations and resits. The procedure for signing up is described in an annex to the student statute.	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 examination than is stipulated in the study guide.	Advice OLC, Approval FGV (7.13 l)
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Article 3.3 Oral examinations

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

1. The examiner determines the result of a written examination within fifteen working days. However, the marking deadline for theses and final assignments is twenty working days after submission. 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. 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.	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)
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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, course manual or teaching 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) examination must not take place within ten working days of the announcement of the result of the (partial) examination being resat.	Advice OLC; approval FGV (7.13 j)
4. The Examination Board may allow a student an extra opportunity to sit an examination if that student: a) lacks only those credits to qualify for their degree; and b) has failed the examination during all the previously offered attempts unless participation in an examination was not possible for compelling reasons. The extra opportunity can only be offered if it concerns a written examination, a paper or a take home examination. This provision excludes the practical 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, at least one additional opportunity will subsequently be provided to sit the examination(s) or parts thereof and a transitional arrangement will be included in section 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
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 unit of education consists of two or more parts, each of which are graded separately, the (weighted) mean of these marks (meaning: the final mark) must be rounded off using the following table:	Ordinance CvB, see Appendix III

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		
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: s(atisfactory), g(ood), u(n)s(at)is(factory), etc. In case a student does not take part in any 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 the student from taking one or more examination components, if they: - 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; - 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 the possibility of exemption.	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's 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 programmes. In such a case, the examination board may deviate from the regulations under a.	Advice OLC; approval FGV (9.38 sub b)

Article 3.8 Validity period for results

1. The validity period of examinations passed and exemption from 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 education concerned, as stipulated for the relevant unit of education in Section B. In exceptional circumstances, an examiner may deviate from this; this must be stated on Canvas at the start of the unit of education.	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 examination, but at least ten working days before the resit opportunity for that 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 where students can inspect their work will be announced on VU.nl Dashboard or Canvas in all cases.	Advice OLC; approval FGV (7.13 p and q)
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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 weighted average 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 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.	Ordinance CvB, see Appendix III

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 Counsellor 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 stating that if insufficient improvement in their performance is forthcoming by the end of the academic year, they will receive a negative advice regarding the continuation of 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 due to personal circumstances as described in Article 2.1 of the Higher Education and Research (Implementation) Act (Uitvoeringsbesluit WHW).	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. 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.	Ordinance CvB, see Appendix III
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: a) the period in which the circumstance occurs or occurred; b) a description of the circumstance and its seriousness; c) the extent to which they cannot or could not participate in instruction/classes or an 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 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 education 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 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 provisions.	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 organisation 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 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 academic adviser can take the necessary measures. 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 5 may specify a limited validity of the facilities granted.	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 of education listed below have a size that is not 6 EC or a multiple thereof:			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. Applicants 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. Applicants who do not meet the previous education requirements as stipulated in the '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 exams: - 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: a. IELTS (academic) 6.5; b. TOEFL paper-based test 580; TOEFL internet-based test 92; c. VU English Language Proficiency Test: TOEFL ITP 580; d. Cambridge Certificate of Proficiency in English (CPE) or Cambridge Certificate of Advanced English (CAE): grade A, B or C; e. Secondary education state exam: VWO English language and literature; f. A VWO diploma or equivalent diploma in which English of a comparable level is required. 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.	Ordinance CvB, see Appendix III
5. Anyone who does not meet the requirements for previous education but who has passed the propaedeutic examination of a higher professional education programme may still be admitted to the programme by successfully completing the following exams: certification demonstrating English proficiency and level of mathematics 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. Examinations and results

Article 9.1 Sequence of examinations

1. Students may participate in the examinations and practical exercises of the units of education below only if they have passed the examination or examinations for the following units of education: - All second-year students of Mathematics are required to take the Study and Career component of, depending on their tracks, XB_0104 Elements of Geometry or XB_0107 Probabilistic Forecasting for Dynamical Systems. Students can only receive credits of XB_0104 Elements of Geometry / XB_0107	Advice OLC; approval FGV (7.13 h, 7.13 s/t)
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Probabilistic Forecasting for Dynamical Systems if they have passed the Study and Career component.	
2. Students may be admitted to the following specialisations only if they have passed the 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)

Article 9.2 Validity period for results

1. The validity period of the examinations and exemptions from 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, tracks/specialisations, 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 specialisations

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, optimization and economics, 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) 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 specialisation 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 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 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 core

1. The academic development consists of: (1) Academic development (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)

Article 11.2 Major

1. The major comprises a package of compulsory and possibly optional units of education.	Ordinance CvB, see Appendix III
2. In addition, units of education are categorised 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	

Article 11.3c | Year 2 - Major Pure Mathematics

Year 2 – Major Pure Mathematics				
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	

Year 2 – Major Pure Mathematics – Track Algebra and Geometry				
Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Elements of Geometry	XB_0104	6	200	
Galois Theory	XBU_417008	6	300	

Year 2 – Major Pure Mathematics – Track Analysis and Dynamical systems (*): 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	
Probabilistic Forecasting for Dynamical Systems	XB_0107	6	200	
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)
Probabilistic Forecasting for Dynamical Systems	XB_0107	6	200	
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)
Probabilistic Forecasting for Dynamical Systems	XB_0107	6	200	
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	XB_0099	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	XB_0099	6	100	

<i>Year 2 – Major Applied Mathematics – Track Optimization and Economics</i> (*): one out of two				
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

<i>Year 3</i>				
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

<i>Year 3 – Major Pure Mathematics – Track Algebra and Geometry</i> (*): at least one out of four				
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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) (*)	XB_0111	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) (*)	XB_0111	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) (*)	XB_0111	6	300	
Databases (*, **)	X_401008	6	200	
Partial Differential Equations (BSc) (*)	X_400163	6	300	
(**): Counts either towards this constrained choice or towards the constrained choice of the minor Applied Mathematics, track Computer Science in Article 12.2, but not to both.				

Year 3 – Major Applied Mathematics – Track Data Science (*): 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) (*)	XB_0111	6	300	
Machine Learning (*)	X_400154	6	300	

Year 3 – Major Applied Mathematics – Track Optimization and Economics (*) 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) (*)	XB_0111	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

Year 3 electives				
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	XB_0111	6	300	
Biomedical Mathematics	X_401056	6	300	
Combinatorial Game Theory	XB_0100	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	
(*): taught every other year, yes in 2023-24				

Article 11.5 Practical exercise

Not applicable

Article 11.6 Participation in practical exercises and tutorials

Not applicable

12. Electives

Article 12.1 Electives

1. The first semester of the third year of the curriculum comprises at least 30 EC of elective units of education at an academic level.	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 (6 EC) can be 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)	Ordinance CvB, see Appendix III

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.	
3. Prior consent must be obtained from the Examination board.	Ordinance CvB, see Appendix III

Article 12.2 Minors

1. Students who meet the admission requirements can take a 'University minor' without prior consent from the Examination Board.	Ordinance CvB, see Appendix III
2. Students can take one of the following minors without prior consent from the Examination Board: - the minor Pure Mathematics, - the minor Applied Mathematics, - the 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	

<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> (*) : one out of two, (**) : 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 AI (*)	XB_0043	6	200	
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	
(***): Counts either towards this constrained choice or towards the constrained choice of the major Applied Mathematics, track Computer Science in Article 11.3.g, but not to both.				

<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 listed below. The honours student makes a selection from these courses in consultation with the study advisor.

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
<i>Mathematics Honours Components</i>				
Dynamical Systems*	X_HP400637	3	400	
Functional Analysis*	X_HP011	3	400	
Honours Project Mathematics	X_HP014	6	400	
Independent Study 1	X_HP012	6	400	
Independent Study 2	X_HP013	6	400	
Mathematical Statistics*	X_HP0049	3	400	
Number Theory*	X_HP400632	3	400	
Numerical Methods*	X_HP401039	3	400	
Rings and Fields *	X_HP400630	3	400	
Topology*	X_HP400416	3	400	
*star variants are extensions of regular courses				
<i>Science Faculty Honours Courses</i>				
Climate Repair	A_HP006	6	400	

Diversity in Genetic Research	A_HP005	6	400
Five O'Clock Neurosciences (HP)	A_HP003	6	400
Impact of Algorithms on HL	X_HP015	6	400
Nutrition for healthy growth and dev.	A_HP004	6	400
Project Science and Tech-basede EN	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

1. 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_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 courses XB_0028 Project Applied Mathematics (offered last time in 2020-21), XB_0029 Project Pure Mathematics (offered last time in 2020-21), XB_0067 Project Mathematics (offered last time in 2022-23) are replaced by the new courses XB_0104 Elements of Geometry, which is compulsory in the track Algebra and Geometry, and XB_0107 Probabilistic Forecasting for Dynamical Systems, which is compulsory in the other six tracks. Students who have earned the credits of one of XB_0028, XB_0029, XB_0067 are exempt from the compulsory XB_0104 / XB_0107. - 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 the constrained choice (*) and (**) in Article 12.2. - The discontinued course X_400614 Data Structures and Algorithms was part of the minor Applied Mathematics up to 2021-22. It is replaced by XB_0091 Data Structures and Algorithms for CS and XB_0043 Data Structures and Algorithms for AI in the tracks Computer Science and Data Science. The credits of the three courses are equivalent.	Advice OLC (7.13 a)
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| <ul style="list-style-type: none">- The course XB_0111 Bayesian Statistics (BSc) up to 2022-23 existed under the code XBU_400468. The credits of XBU_400468 are equivalent to the credits of XB_0111.- The course XB_0099 Introduction to Programming up to 2022-23 existed under the code/name X_400634 Introduction to Programming (Java). The credits of X_400634 are equivalent to the credits of XB_0099. | |
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Approval of the Programme Committee of the curriculum structure (submitted via UAS), on 08-12-2022.

Advice and approval by the Programme Committee (with the exception of the curriculum structure), on 25-05-2023.

Approved by the Faculty Joint Assembly, on 23-06-2023.

Adopted by the board of the Faculty of Sciences, on 23-06-2023.

Appendix I

Overview of articles that must be included in the Teaching and Examination Regulations

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 Setup of the 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 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 section – 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
[Keuze:] 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. Examinations and results	
Article 9.1 Sequence of examinations	7.13 paragraph 2 sub h, s, t
[Keuze 1:] Article 9.2 Validity period for results	7.13 paragraph 2 sub k
[Of keuze 2:] Article 9.2 Validity period for results	7.13 paragraph 2 sub k

Section B2: Programme-specific section – content of programme

10. Programme objectives, tracks/specialisations and exit qualifications	
Article 10.1 Programme objective	7.13 paragraph 2 sub a
Article 10.2 Tracks and/or specialisations	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 (<i>implementation expected in 2020</i>)
Article 10.4.3 Language test	7.13 paragraph 2 sub a, c
11. Curriculum structure	
Article 11.1 Academic core [<i>keuze</i> : 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
[<i>Keuze</i> :] Article 11.4 Elective units of education of the major	7.13 paragraph 2 sub a
[<i>Keuze</i> :] 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 Electives	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 programme	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)

Article 7.13, paragraph 2, of the Higher Education and Research Act	FGV		OpIC	
	I	A	I	A
a. the content of the programme and the associated examinations				
a1. the manner in which teaching and education in the relevant programme are evaluated				
b. the content of the specialisations 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 units of education				
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 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 in which, students can take the interim and final examinations, as well as the timing of and number of opportunities				
k. where necessary, the period of validity for pass grades awarded for examinations, notwithstanding the authority of the Examination Board to extend this period of validity				
l. whether 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 examinations				
n. the public nature of oral examinations, subject to the right of the Examination Board to determine otherwise in special cases				
o. the period within which the results of an 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 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 examination and about the standards used for assessment				
r. the grounds on which the Examination Board may grant exemptions from taking one or more examinations on the basis of interim examinations or final examinations previously completed in higher education, or on the basis of knowledge or skills acquired outside higher education				
s. where necessary, the stipulation that students must pass certain examinations as a condition for admission to other examinations				
t. where necessary, the obligation to take part in certain practical exercises with a view to admission to the 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>				

The lettering corresponds to the lettering of Article 7.13 section 2 of the WHW

Abbreviations used:

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

Appendix III

Ordinances of VU Executive Board (CvB) and Binding Bachelor's Guidelines

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, included in OER template, revised on 6 June 2017
2.2.1	Setup of the programme	Bachelor-richtlijn, included in OER template, revised on 6 June 2017
2.2.2, 2.2.3	Planning academic year (number of contact hours)	Bachelor-richtlijn, included in OER template, revised on 6 June 2017
2.2.4	Internationalisation	CvB ordinance, following the advice of the Internationalisation Board, in December 2008 and included in the IP
3.1.1, 3.1.2	Signing up for education and 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, approval GV 28-02-2013
3.5.1	Two possibilities to take examinations	Bachelor-richtlijn, included in OER template, revised on 6 June 2017
3.5.2	Resit: most recent grade is valid, resit allowed in case of pass grade	Taken from the UvA guidelines, as part of the harmonisation, 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, prior consent USR. As a result of harmonisation 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) at end of first year	BSA kaderregeling ordinance CvB 18-01-2010 (1) BSA kaderregeling ordinance CvB 27-10-2015, consent USR (2) Kaderregeling revised on 12-09-2017
5.2.2	Formal warning before February 1st	BSA kaderregeling ordinance CvB 18-01-2010 (1) BSA kaderregeling ordinance CvB 27-10-2015, consent USR on OER 2016-2017 (2) Kaderregeling revised on 12-09-2017
5.3	Binding (negative) recommendation on continuation of studies	BSA kaderregeling ordinance CvB 18-01-2010 (1) BSA kaderregeling ordinance CvB 18-01-2010, consent USR on OER 2016-2017 (2) 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 core	Bachelor-richtlijn, included in OER template, revised on 6 June 2017 (Possibly 'development' instead of 'core' due to harmonisation with UvA. CvB ordinance 24-02-2014.
11.2	Major	Bachelor-richtlijn, included in OER template, revised on 6 June 2017
12.1	Elective period (first semester, third year)	Bachelor-richtlijn, included in OER template, 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

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 organisation and the administration of the affairs of the institution,
- g. membership on the board of a student organisation of a certain size with full legal capacity, or a similar organisation 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 organisation 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).