Teaching and Examination Regulations (TER)
Faculty of Science
Masterprogramme in Business Analytics
Academic year: 2019-2020

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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 for the programme, irrespective of the academic year in which the student was first enrolled for the programme. These Regulations apply to the teaching and examinations for the following Master’s degree programmes:

   - Artificial Intelligence
   - Bioinformatics and System Biology
   - Biomedical Sciences
   - Biomolecular Sciences
   - Business Analytics
   - Computer Science
   - Drug Discovery and Safety
   - Earth Sciences
   - Ecology
   - Environment and Resource Management
   - Global Health (research)
   - Health Sciences
   - Hydrology
   - Information Sciences
   - Management, Policy Analysis and Entrepreneurship in the Health and Life Sciences
   - Mathematics
   - Medical Natural Sciences
   - Neurosciences (research)
   - Parallel and Distributed Computer Systems
   - Science Business and Innovation
   - Stochastics and Financial Mathematics

2. These Regulations enter into force with effect from 1 September 2019.

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.

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 the educational institution within and outside the EU, as to gain a double university degree; of the VU and the educational institution concerned; though not being the same as a ‘joint degree programme’ according to the art. 7.3c WHW’;

d. EC (European Credit): an EC credit with a workload of 28 hours of study;

e. educational component: a unit of study of the programme within the meaning of the WHW;

f. examination: the final examination of the Master’s programme;

g. exemption Exemption from an examination/ practical/ fieldwork based on an earlier successfully completed examination, or knowledge / skills of a similar content, level and scope gained outside higher education;

h. FGV: Faculty joint assembly – assembly of the faculty student council and faculty staff
council;

i. interim examination: an assessment of the student’s knowledge, understanding and skills relating to a course component. The assessment is expressed in terms of a final mark. An interim examination may consist of one or more partial examinations. A resit always covers the same material as the original interim examination;

j. joint degree: a degree awarded by an institution together with one or more institutions in the Netherlands or abroad, after the student has completed a study programme (a degree programme, a major or a specific curriculum within a degree programme) for which the collaborating institutions are jointly responsible;

k. OLC: programme committee;

l. period: a part of a semester;

m. practical exercise: the participation in a practical training or other educational learning activity, aimed at acquiring certain (academic) skills. Examples of practical exercises are:

  o researching and writing a thesis or dissertation
  o carrying out a research assignment
  o taking part in fieldwork or an excursion
  o taking part in another educational learning activity aimed at acquiring specific skills, or
  o participating in and completing a work placement;

n. premaster student those who enroll in a premaster programme;

o. Programme: the totality and cohesion of the course components, teaching activities/methods, contact hours, testing and examination methods and recommended literature;

p. SAP/SLM: the student information system (Student Lifecycle Management);

q. semester: the first (September - January) or second half (February - August) of an academic year;

r. study guide: the guide for the study programme that provides further details of the courses, provisions and other information specific to that programme. The Study Guide is available electronically at:

https://www.vu.nl/studiegids

s. subject see ‘educational component’;

t. substituting course/educational component see under d (double degree programme). A course obtained at the educational institute, within the context of cooperation, that is mentioned in the diploma supplement as such; not being an ‘exemption’.

u. thesis/ internship work placement a component comprising research into the literature and/or contributing to scientific research, always resulting in a written report;

v. university: Vrije Universiteit Amsterdam;

w. WHW: the Dutch Higher Education and Research Act (Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek);

x. workload: the workload of the unit of study to which an interim examination applies, expressed in terms of credits = EC credits (ECTS = European Credit and Transfer Accumulation System). The workload for 1 year (1,680 hours) is 60 EC credits.

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

2. Study programme structure

Article 2.1 Structure of academic year and educational components

<table>
<thead>
<tr>
<th>Article 2.1 Structure of academic year and educational components</th>
<th>Ordinance CvB, see appendix 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The study programme will be offered in a year divided into two semesters.</td>
<td>Ordinance CvB, see appendix 3</td>
</tr>
<tr>
<td>2. Every semester consists of three consecutive periods of eight, eight and four weeks.</td>
<td>Ordinance CvB, see appendix 3</td>
</tr>
<tr>
<td>3. An educational component comprises 6 EC or a multiple thereof.</td>
<td>Ordinance CvB, see appendix 3</td>
</tr>
</tbody>
</table>
4. By way of exception to paragraph 3, Section B may stipulate that a unit of study comprises 3 EC or a multiple thereof. The Faculty Board requests permission from the Executive Board.

Article 2.2 Refusal or termination of registration / (judicium abeundi)

1. Pursuant to the provisions of Article 7.42a of the Act, the Faculty Board or the Examination Board may, in exceptional circumstances, request the Executive Board to terminate or refuse a student’s registration on a programme. This may be the case if the student’s conduct or statements demonstrate his or her unsuitability to work in the relevant field or discipline, or to take part in the programme’s practical training component.

2. If a student is suspected of being unsuitable as described in paragraph 1, the Examination Board or the Faculty Board will examine the case, and the student will be informed of this immediately. The Examination Board or the Faculty Board will only issue a recommendation after careful consideration of the interests involved and following a hearing with the student concerned.

3. Assessment and Examination

Article 3.1 Signing up for education and interim examinations

1. Every student must sign up to participate in the educational components of the programme, the examinations and resits. The procedure for signing up is described in an annex to the Student Charter.

2. Signing up may only take place in the designated periods.

3. If a student does not pass the examination and the resit of a component, he/ she is obliged to take the whole component again. This rule does not apply to practical exercises and programmes that make use of component marks that retain their validity. For further regulations see Section B of the programme involved.

Article 3.2 Type of examination

1. At the student’s request, the Examination Board may permit a different form of interim examination than that stipulated in the course catalogue. If applicable, more detailed regulations on this are included in the Rules and Guidelines for the Examination Board.

2. In an educational component is no longer offered in the academic year following its termination, at least one opportunity will be provided to sit the interim examination(s) or parts thereof and a transitional arrangement will be included in the programme-specific section for the subsequent period.

Article 3.3 Oral interim examinations

1. An oral assessment is public unless the Examinations Board on request determines otherwise.

2. An oral examination will be taken in the presence of a second examiner.

Article 3.4 Determining and announcing results

1. The examiner determines the result of a written interim examination as soon as possible, but at the latest within fifteen working days. By way of departure from that stipulated in the first clause, the marking deadline for theses, internships / work placements and final assignments is no longer than twenty working days. The examiner will then immediately ensure that the marks are registered and also ensures that the student is immediately notified of the mark, taking due account of the applicable confidentiality standards.
2. a. The examiner determines the result (i.e. mark) of an oral examination as soon as possible, though within one working day, after the examination has finished and informs the student accordingly. The third clause of the first paragraph applies.  
b. The examiner determines the result of an interim examination no later than five working days before the next (interim) examination will be held.

3. In the case of alternative forms of oral or written examinations, the Examination Board determines in advance how and by what deadline the student will be informed of the results.

4. A student can submit a request for reassessment to the examiner. A request for reassessment does not affect the time period for lodging an appeal.

5. Together with the result of an examination, the student’s attention will also be drawn to their right to inspect the assessed work and have a post-examination discussion as stipulated in Art. 3.9, as well as his/her option to lodge a complaint before the Examination Board, and if necessary, to appeal to the Examinations Appeals Board (in Dutch: COBEX).

Article 3.5 Examination opportunities

1. a. Per academic year, two opportunities to take examinations per educational component will be offered.  
b. The options for retaking practical components, work placements and theses are detailed in the relevant work placement manual, teaching regulations or graduation regulations.

2. The most recent mark will apply in the event of a resit. A retake is allowed for both passed and failed units of study.

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.

4. The Examination Board may allow a student an extra opportunity to sit an examination if that student:  
a) is lacking only those credits to qualify for his or her degree;  
b) has failed the examination during all the previously offered attempts, unless participation in an examination was not possible for compelling reasons.

The extra opportunity can only be offered if it concerns a written examination, a paper or a take home examination. This provision excludes the practical assignments and the Master’s thesis. Requests for an additional examination opportunity must be submitted to the Examination Board no later than 15 July. If necessary, the method of examination may deviate from the provisions in the study guide.

Article 3.6 Marks

1. Marks are given on a scale from 1 to 10 with no more than one decimal point.

2. The final marks are given in whole or half points.

3. Final marks between 5 and 6 will be rounded off to whole marks: up to 5.5 rounded down; from 5.5 rounded up. To pass a course, a 6 or higher is required.

In case the examination of a component consists of two or more parts, each of which are graded separately, the (weighted) mean of these marks (meaning: the final mark) must be rounded off using the following table:

<table>
<thead>
<tr>
<th>From</th>
<th>Up to</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1,25</td>
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</tr>
<tr>
<td>2,25</td>
<td>2,75</td>
<td>2,5</td>
</tr>
</tbody>
</table>
Article 3.7 Exemption

1. At the written request of the student, the Examination Board may exempt the student from taking one or more examination components, if the student:
   a) has passed a course component of a university or higher professional education programme that is equivalent in terms of content and level;
   b) has demonstrated through his/her work and/or professional experience that he/she has sufficient knowledge and skills with regard to the relevant course component.

The Examination Board will make a decision within six weeks after receiving the request.

2. The Master’s thesis, the final work placement (c.q. internship) and the final project (c.q. final paper) are excluded from this exemption possibility.

3. A maximum of 18 EC for a one one-year master programme and 36 EC for a one two-year master programme can be accumulated through granted exemption. The substituting courses (educational components) are not included.

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.

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.

Article 3.9 Right of inspection and post-examination discussion

1. For twenty working days after the announcement of the results of a written interim examination, the student can, on request, inspect his or her assessed work, the questions and assignments set in it, as well as the standards applied for marking. The place and time referred to in the previous clause will be announced at the time of the interim examination on VUnet or Canvas.

2. If a collective post-examination discussion has been organized, individual post-examination discussions will be held only if the student has attended the collective
discussion or if the student was unable to attend the collective discussion through no fault of his or her own.

3. Students who meet the requirements stipulated in paragraph 1 can submit a request for an individual post-examination discussion to the relevant examiner. The discussion shall take place at a time and location to be determined by the examiner.

**Article 3.10 Fraud and plagiarism**

1. The provisions of the Rules and Guidelines for the Examination Board apply in full.  
   **Ordinance CvB**

2. Electronic detection software programmes may be used to detect plagiarism in texts. In submitting a text, the student implicitly consents to the text being saved in the database of the detection programme concerned.  
   **Ordinance CvB**

**4. Academic student counselling and study progress**

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

1. The faculty board is responsible for the correct registration of the students’ study results. After the assessment of an educational component has been registered, every student has the right to inspect the result for that component and also has a list of the results achieved at his or her disposal in VUnet.  
   **Advice OLC; approval FGV (7.13 u)**

2. Enrolled students are eligible for academic student counselling. Academic student counselling is in any case provided by:
   a. The Student General Counselling Service
   b. Student psychologists
   c. Faculty academic advisors  
   **Advice OLC; approval FGV (7.13 u)**

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

1. A student with a disability can, at the moment of submission to VUnet, or at a later instance, submit a request to qualify for special adaptations with regard to teaching, practical training and interim examinations. These adaptations will accommodate the student’s individual disability as much as possible, but may not alter the quality or degree of difficulty of a unit of study or an examination. In all cases, the student must fulfil the exit qualifications for the study programme.  
   **Advice OLC; approval FGV (7.13 m)**

2. The request referred to in the first paragraph must be accompanied by a statement from a doctor or psychologist. If possible, an estimate should be given of the potential impact on the student’s study progress. In case of a chronic disability a single (one time) request suffices.  
   **Advice OLC; approval FGV (7.13 m)**

3. Students who have been diagnosed with dyslexia must provide a statement from a BIG, NIP or NVO registered professional who is qualified to conduct psychological evaluation.  
   **Advice OLC; approval FGV (7.13 m)**

4. The faculty board, or on behalf of the faculty board, the educational director, or the programme director, decides on the adaptations concerning the teaching facilities and logistics. The Examination Board will rule on requests for adaptations with regard to examinations.  
   **Advice OLC; approval FGV (7.13 m)**

5. In the event of a positive decision in response to a request as referred to in paragraph 1, the student will make an appointment with the study adviser to discuss the details of the provisions.  
   **Advice OLC; approval FGV (7.13 m)**

6. A request for adaptations will be refused if it would place a disproportionate burden on the organization or the resources of the faculty or university were it upheld.  
   **Advice OLC; approval FGV (7.13 m)**

7. If the disability justifies an extension of the interim examination time, the Examination Board will grant permission testifying to this entitlement to an extension. If a disability justifies other measures to be taken, the Examination Board will advice the Faculty Board on the necessary measures to be taken.  
   **Advice OLC; approval FGV (7.13 m)**

8. The decision as referred to in paragraph 7, is valid for a maximum period of one year with the exception for the chronic diseases and disabilities.  
   **Advice OLC; approval FGV (7.13 m)**
5. Hardship clause

Article 5.1 Hardship clause
In instances not regulated by the Teaching and Examination Regulations or in the event of demonstrable extreme unreasonableness and unfairness, the faculty board responsible for the study programme will decide, unless the matter concerned is the responsibility of the Examinations Board.

Advice OLC; approval FGV (9.38 sub b)

Article 5.2. Publication
1. The faculty board will ensure the appropriate publication of these Regulations and any amendments to them.

WHW

2. The Teaching and Examination Regulations will be posted in the study guide or on VUnet.

WHW

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

Adopted by the Faculty Board on 30 August 2019.
Section B1: Programme specific – general provisions

6. General programme information and characteristics

Article 6.1 Study programme information

1. The programme Business Analytics CROHO number 66856 is offered on a full-time and combined work-study basis.  
   Advise OLC; approval FGV (7.13 i)

2. The language of instruction is English.  
   Advise OLC; approval FGV (9.38 sub b)

Article 6.2 Teaching formats used and modes of assessment

1. The programme uses the teaching formats as specified in the study guide.  
   Advise OLC; approval FGV (7.13 x)

2. The modes of assessment used per educational component are specified in the study guide.  
   Advise OLC; approval FGV (7.13 l)

7. Further admission requirements

Article 7.1 Intake date(s)

1. The programme starts on September 1.  
   Advise OLC; approval FGV (9.38 sub b)

Article 7.2 Admission requirements

1. Admission to the master's programme is possible for an applicant who has obtained a bachelor’s degree at an institution of academic higher education, which demonstrates the knowledge, understanding and skills corresponding to the exit qualifications of the bachelor programme Business Analytics. This is demonstrated in the following prior education requirements:
   a. Registration for the master’s programme in Business Analytics is open to anyone who is in possession of a bachelor’s degree in Business Analytics.
   b. An applicant with a university bachelor’s degree in a field other than that specified in paragraph 7.2.1.a may be admitted to the programme by the examination board if the following conditions have been met:
      - the applicant’s prior education, including any additional coursework, includes at least 90 credits in mathematics, computer science and/or econometrics;
      - the applicant’s prior education, including any additional coursework, includes at least 45 credits in mathematics, including at the very least Probability and Statistics;
      - the applicant has proven programming experience;
      - the applicant’s prior education meets the qualifications of a university bachelor’s programme as defined in the Dublin descriptors;
      - the applicant’s English-language proficiency is at least equivalent to pre-university final-exam level (vwo in the Netherlands).

   Partly legal provision & ordinance CvB, see appendix 3. Admission requirements excepted from participation in WHW

2. The admissions board will investigate whether the applicant meets the admission requirements.  
   Legal provision
### Article 7.3 Premaster’s programme

1. a) Students with a bachelor's degree of a university of applied science (HBO) in a field that corresponds to a sufficient extent with the subject area covered by the master's programme can request admission to the premaster's programme.

   b) Students with a bachelor's degree from an institution of academic higher education in a field that does not sufficiently corresponds with the subject area covered by the master's programme can request admission to the premaster’s programme.

2. The premaster’s programme comprises 30 EC and is determined by the admission board, and depends on the prior knowledge of the candidate.

3. A successfully completed premaster’s programme serves as proof of admission to the specified master's programme in the subsequent academic year.

4. A candidate can only participate in one premaster’s programme at the Vrije Universiteit.

### Article 8. Interim examinations and results

#### Article 8.1 Sequence of interim examinations

1. Students may participate in interim examinations [or practical exercises] of the components below, only if they have passed the interim examination or examinations for the components mentioned hereinafter: before starting an internship and/or graduation project, the student must have earned all other programme credits. A shortfall of 6 credits is permissible, as long as it does not include credits for the Research Paper Business Analytics or the Research Seminar Business Analytics.

#### Article 8.2 Validity period for results

See Article 3.8 of the Teaching and Examination Regulations, section A. No further specific provisions.

#### Article 8.3 Maximum Exemption(s)

A maximum of 36 EC of the curriculum can be accumulated through granted exemptions, based on previous results within other master’s programmes.

#### Article 8.4 Degree

Degree Students who have successfully completed their master’s final examination are awarded a Master of Science degree (MSc). The degree awarded is stated on the diploma.
Section B2: Programme specific – content of programme

9. Programme objectives, specializations and exit qualifications

Article 9.1 Workload
1. The programme has a workload of 120 EC

Article 9.2 Specializations
The programme has the following specializations:
a) Dual variant;
b) Professional track.

Article 9.3 Programme objective
The programme aims to acquire sufficient knowledge, skills and insight within the field of Business Analytics and any related disciplines to be able to operate as an independent professional at graduate level, and to be a suitable candidate for a subsequent course of study leading to a career in research or development.

Another aim of the programme is to develop students’ understanding of the interrelationships between disciplines, as well as their sense of social responsibility.

Article 9.4 Exit qualifications
1. At all events, a graduate of the study programme:
   × has knowledge about advanced methods in a broad field of mathematics and computer science as applied to commercial and industrial processes;
   × has experience in conducting applied research in a branch of mathematics and computer science in a multidisciplinary business context;
   × is capable of gaining a working knowledge of other relevant branches of mathematics and computer science within a reasonable period of time;
   × is capable of formulating a plan for a research project based on a realistic research question;
   × is able to analyse and formulate research results, draw conclusions from them, and present these conclusions (in English) so that even non-specialists are able to comprehend them;
   × is capable of independent and critical reflection on his/her own and others’ work in accordance with relevant frameworks of applicability;
   × is capable of writing a report in English on his/her own research that meets the prevailing academic standards in the fields of mathematics and computer science;
   × is capable of participating in discussions on field-specific topics of interest, in English and potentially in another language or languages;
   × is capable of studying the professional literature (including international publications) in relevant branches of mathematics and computer science, and of utilizing the relevant content;
   × has experience in modelling complex business processes using advanced methods from mathematics and computer science;
   × is capable of working in a multidisciplinary team and, more specifically, has sufficient knowledge of the theory and practice in the field of business economics to communicate and collaborate with experts in these areas;
   × has sufficient knowledge and understanding of the societal role of mathematics and computer science to decide on a responsible choice of profession and professional practice.
### 10. Curriculum structure

**Article 10.1 Composition of the programme**

1. The programme comprises at least a package of compulsory components and an individual Master’s thesis or academic internship.

2. Additionally the programme offers:
   - Constrained selection;
   - Electives

3. Educational components are categorized as specialized (400), research oriented (500) and highly specialized (600) level.

4. The programme comprises at most three 300-level (advanced bachelor level) courses in total.

**Article 10.2 Compulsory educational components**

A detailed description per educational component can be found in the study guide.

#### Article 10.2a – Dual variant

<table>
<thead>
<tr>
<th>Name of educational component</th>
<th>course code</th>
<th>nr of EC</th>
<th>level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Machine Learning</td>
<td>XM_0010</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Applied Analysis: Financial Mathematics</td>
<td>X_400076</td>
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</tr>
<tr>
<td>Applied Stochastic Modeling</td>
<td>X_400392</td>
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<td>Data Mining Techniques</td>
<td>X_400108</td>
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<td>Dual Workperiod</td>
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<td>Master Project Business Analytics</td>
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<tr>
<td>Research Seminar Business Analytics</td>
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<tr>
<td>Statistical Models</td>
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</table>

#### Article 10.2b – Professional Track

<table>
<thead>
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<th>course code</th>
<th>nr of EC</th>
<th>level</th>
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<td>Applied Analysis: Financial Mathematics</td>
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<td>Project Optimization of Business Processes</td>
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<td>X_400418</td>
<td>6</td>
<td>400</td>
</tr>
</tbody>
</table>

**Article 10.3 Elective educational components Article 10.3a – Dual variant**

1. The student can take one or more of the following electives without prior consent from the examination board:

<table>
<thead>
<tr>
<th>Name of educational component (18 EC required)</th>
<th>course code</th>
<th>nr of EC</th>
<th>level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Linear Programming</td>
<td>X_400326</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Asset Pricing</td>
<td>E_FIN_AP</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Continuous Optimization</td>
<td>X_400446</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Derivatives</td>
<td>E_FIN_DER</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Entrepreneurship in Data Science and Analytics</td>
<td>X_405122</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Evolutionary Computing</td>
<td>X_400111</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Financial Markets and Institutions</td>
<td>E_FIN_FMI</td>
<td>6</td>
<td>400</td>
</tr>
</tbody>
</table>
## Article 10.3a – Professional track

1. The student can take one or more of the following electives without prior consent from the examination board:

<table>
<thead>
<tr>
<th>Name of educational component (24 EC Required)</th>
<th>course code</th>
<th>nr of EC</th>
<th>level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Linear Programming</td>
<td>X_400326</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Asset Pricing</td>
<td>E_FIN_AP</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Continuous Optimization</td>
<td>X_400446</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Derivatives</td>
<td>E_FIN_DER</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Entrepreneurship in Data Science and Analytics</td>
<td>X_405122</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Evolutionary Computing</td>
<td>X_400111</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Financial Markets and Institutions</td>
<td>E_FIN_FMI</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Investments</td>
<td>E_EBE3_INVES</td>
<td>6</td>
<td>300</td>
</tr>
<tr>
<td>Machine Learning for the Quantified Self</td>
<td>XM_40012</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Mathematical Optimization</td>
<td>XM_0051</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Mathematical Systems and Control Theory</td>
<td>X_400180</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Optimization of Business Processes</td>
<td>X_400422</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Performance of Networked Systems</td>
<td>X_405105</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Planning and Reinforcement Learning</td>
<td>XM_0055</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Project Optimization of Business Processes</td>
<td>X_400213</td>
<td>6</td>
<td>500</td>
</tr>
<tr>
<td>Quantitative Financial Risk Management</td>
<td>E_FIN_QFRM</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Scheduling</td>
<td>X_400396</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Stochastic Optimization</td>
<td>X_400336</td>
<td>6</td>
<td>400</td>
</tr>
<tr>
<td>Stochastic Processes for Finance</td>
<td>X_400352</td>
<td>6</td>
<td>400</td>
</tr>
</tbody>
</table>

2. If the student wishes to take a different educational component than listed, advance permission must be obtained in writing from the examination board.

### Article 10.4 Practical exercise

Not applicable.

### Article 10.5 Participation in practical training and tutorials

Not applicable.
11. Evaluation and transitional provisions

**Article 11.1 Evaluation of the education**

The education provided in this programme is evaluated in accordance with the (attached) evaluation plan. The faculty evaluation plan offers the framework.

**Article 11.2 Transitional provisions**

By way of departure from the Teaching and Examination Regulations currently in force, the following transitional provisions apply for students who started the programme under a previous set of Teaching and Examination Regulations: *Not applicable.*

Advice and approval by the Programme Committee of Mcs Business Analytics, on 3 June 2019.

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

Adopted by the board of the Faculty of Science on 30 August 2019.
Appendix I  Overview of articles that must be included in the OER

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

Section B1: Programme specific – general provisions

### 6. General programme information and characteristics

<table>
<thead>
<tr>
<th>Article</th>
<th>Paragraph</th>
<th>Section 7.13 paragraph 2 sub</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Study programme information</td>
<td>2 i, r</td>
<td>i</td>
</tr>
<tr>
<td>6.2 Teaching formats used and modes of assessment</td>
<td>2 l, x</td>
<td>l</td>
</tr>
<tr>
<td>[option:] 6.3 Academic student counselling</td>
<td>2 u</td>
<td>u</td>
</tr>
</tbody>
</table>

### 7. Further admission requirements

<table>
<thead>
<tr>
<th>Article</th>
<th>Paragraph</th>
<th>Section 7.30b paragraph 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2 Admission requirements</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### 8. Interim examinations and results

<table>
<thead>
<tr>
<th>Article</th>
<th>Paragraph</th>
<th>Section 7.13 paragraph 2 sub</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1 Sequence of interim examinations</td>
<td>2 h, s, t</td>
<td>h</td>
</tr>
<tr>
<td>[option 1:] 8.2 Validity period for results</td>
<td>2 k</td>
<td>k</td>
</tr>
<tr>
<td>[option 2:] 8.2 Validity period for results</td>
<td>2 k</td>
<td>k</td>
</tr>
</tbody>
</table>

Section B2: Programme specific – content of programme

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

<table>
<thead>
<tr>
<th>Article</th>
<th>Paragraph</th>
<th>Section 7.13 paragraph 2 sub</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1 Workload</td>
<td>2 g</td>
<td>g</td>
</tr>
<tr>
<td>9.2 Specializations</td>
<td>2 a</td>
<td>a</td>
</tr>
<tr>
<td>9.3 Programme objective</td>
<td>2 a</td>
<td>a</td>
</tr>
<tr>
<td>9.4 Exit qualifications</td>
<td>2 b, c</td>
<td>b, c</td>
</tr>
</tbody>
</table>

### 10. Curriculum structure

<table>
<thead>
<tr>
<th>Article</th>
<th>Paragraph</th>
<th>Section 7.13 paragraph 2 sub</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1 Composition of the programme</td>
<td>2 a</td>
<td>a</td>
</tr>
<tr>
<td>10.2 Compulsory educational components</td>
<td>2 a</td>
<td>a</td>
</tr>
<tr>
<td>[Optional] 10.3 Elective educational components</td>
<td>2 a</td>
<td>a</td>
</tr>
<tr>
<td>[Optional] 10.4 Practical exercise</td>
<td>2 d</td>
<td>d</td>
</tr>
<tr>
<td>10.5 Participation in practical training and tutorials</td>
<td>2 d</td>
<td>d</td>
</tr>
</tbody>
</table>

### 11. Evaluation and transitional provisions

<table>
<thead>
<tr>
<th>Article</th>
<th>Paragraph</th>
<th>Section 7.13 paragraph 2 sub</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1 Evaluation of the education</td>
<td>2 a1</td>
<td>a1</td>
</tr>
<tr>
<td>11.2 Transitional provisions</td>
<td>2 a</td>
<td>a</td>
</tr>
</tbody>
</table>
## Appendix II  Overview of rights to prior consultation (advice) and rights to approve OLC and FGV (Dutch only)

<table>
<thead>
<tr>
<th>Onderwerpen Onderwijs – en Examenregeling (OER) 7.13 paragraph 2</th>
<th>FGV</th>
<th>OplC</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. de inhoud van de opleiding en van de daaraan verbonden examens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a1. de wijze waarop het onderwijs in de desbetreffende opleiding wordt geëvalueerd</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. de inhoud van de afstudeerinhoud van een opleiding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. de kwaliteiten op het gebied van kennis, inzicht en vaardigheden die een student zich bij beëindiging van de opleiding moet hebben verworven</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. waar nodig, de inrichting van praktische oefeningen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. de studielast van de opleiding en van elk van de daarvan deel uitmakende onderwijsen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. de nadere regels, bedoeld in de artikelen 7.8b, zesde lid, en 7.9, vijfde lid (BSA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. ten aanzien van welke masteropleidingen toepassing is gegeven aan artikel 7.4a, achtste lid (verhoogde studielast)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. het aantal en de volgtijdelijkheid van de tentamens alsmede de momenten waarop deze afgelegd kunnen worden</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. de voltijdse, deeltijdse of duale inrichting van de opleiding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. waar nodig, de geldigheidsduur van met goed gevolg afgelegde tentamens, behoudens de bevoegdheid van de examencommissie die geldigheidsduur te verlengen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m. de wijze waarop studenten met een handicap of chronische ziekte redelijkerwijs in de gelegenheid worden gesteld de tentamens af te leggen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n. de openbaarheid van mondeling af te nemen tentamens, behoudens de bevoegdheid van de examencommissie in bijzondere gevallen anders te bepalen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o. de termijn waarbinnen de uitslag van een tentamen bekend wordt gemaakt alsmede of en op welke wijze van deze termijn kan worden afgeweken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p. de wijze waarop en de termijn gedurende welke degene die een schriftelijk tentamen heeft afgelegd, inzage verkrijgt in zijn beoordeelde werk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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</td>
<td></td>
<td></td>
</tr>
<tr>
<td>s. waar nodig, dat het met goed gevolg afgelegd hebben van tentamens voorwaarde is voor de toelating tot het afleggen van andere tentamens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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</td>
<td></td>
<td></td>
</tr>
<tr>
<td>u. de bewaking van studievoortgang en de individuele studiebegeleiding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>v. indien van toepassing: de wijze waarop de selectie van studenten voor een speciaal traject binnen een opleiding, bedoeld in artikel 7.9b, plaatsvindt (excellentietraject binnen een opleiding)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x. de feitelijke vormgeving van het onderwijs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Alle overige onderwerpen die in de OER zijn geregeld maar die niet als zodanig zijn genoemd in art. 7.13 WHW onder a t/m x.  

De lettering komt overeen met de lettering van artikel 7.13 lid 2 WHW
### Appendix III  Ordinances VU CvB and Binding Guidelines

<table>
<thead>
<tr>
<th>Section B1, article:</th>
<th>Concerns:</th>
<th>CvB ordinance / guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2.1</td>
<td>Admission criteria; at least WO Bachelor’s degree</td>
<td>Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017</td>
</tr>
<tr>
<td>7.2.3</td>
<td>Additional admission criteria; type of criteria</td>
<td>Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017</td>
</tr>
</tbody>
</table>

### Section B1, article:

<table>
<thead>
<tr>
<th>Section B1, article:</th>
<th>Concerns:</th>
<th>CvB ordinance / guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1</td>
<td>Composition programme</td>
<td>Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017</td>
</tr>
<tr>
<td>10.2</td>
<td>Categorization of components</td>
<td>Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017</td>
</tr>
</tbody>
</table>