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**Examination Regulations of the Master's Program
Mannheim Master in Data Science (M.Sc.)**

as at 10 December 2019

(Bulletin of the President's Office (Amtliche Bekanntmachungen des Rektorats) No. 28/2019 of 17 December 2019, pp. 81 et seqq.)

In the German language version of these Examination Regulations, this section deals with the subject of gender-neutral language. For the English language version, this is not relevant and therefore omitted. This also applies to the usage of academic degrees and academic titles.

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I. General Provisions

Section 1 – Purpose of the Program of Study

¹The master's examination marks the proper completion of the master's program "Mannheim Master in Data Science" (M.Sc.) (Master's degree MMDS). ²The completion of the master's examination constitutes the second professional qualification (consecutive degree). ³It proves that the student has acquired in-depth knowledge regarding the analysis and management of complex data. ⁴Furthermore, it shows that the student has the ability to analyze new problems by making use of the acquired knowledge in the areas Data Storage, Data Management and Data Analytics. ⁵In doing so, students recognize new requirements independently and develop new solutions for complex issues. ⁶In addition, it serves to demonstrate whether the student has the ability to apply scientific methods and generate and use new findings adequately in order to ensure a successful transition into research or the labor market.

Section 2 – Graduation

¹Based on the completion of the master's examination, the School of Business Informatics and Mathematics of the University of Mannheim awards the academic degree "Master of Science" (M.Sc.). ²In accordance with section 36, the academic degree is only to be used after having received the diploma.

Section 3 – Required Coursework and Examinations, Structure, and Language of Instruction and Examination

(1) ¹Coursework and examinations within the master's program total at least 120 ECTS and are obtained in line with the structure of each subject area:

1. Fundamentals (0 to 14 ECTS credits),
2. Data Management (18 to 36 ECTS credits),
3. Data Analytics Methods (30 to 54 ECTS credits),
4. Responsible Data Science (3 to 10 ECTS credits),
5. Projects and Seminars (14 to 18 ECTS credits) and
6. Master's Thesis (30 ECTS credits).

²The detailed rules and regulations on the required ECTS credits for each subject area are specified in sections 28 to 33 in conjunction with the annex. ³One ECTS credit corresponds to a workload of 30 hours. ⁴The workload comprises the hours spent in class, the hours spent on the preparation for and the revision of classes, self-study and the hours spent on preparing for examinations as well as the examinations themselves.

(2) ¹The degree course MMDS has a modular structure. ²The technical, topical and coherent units of instruction (modules) include one course each; in the module "Seminar", students can choose from several available courses and the modules "Team Project", "Individual Project" and "Master's Thesis" do not include a course. ³The individual modules are organized by superordinate units (subject areas). ⁴The composition of the subject areas and modules are specified in sections 28 to 33 in conjunction with the annex. ⁵The contents of the modules can be found in the current version of the University of Mannheim's module catalog for the "Mannheim Master in Data Science" (module catalog MMDS); sentence 7 forms an exception to this rule. ⁶The module catalog MMDS is passed by the school council of the School of Business Informatics and Mathematics. ⁷The contents of the available elective modules in the areas "Fundamentals" and "Data Analytics Methods" that are not offered by the department of Informatics (imported elective modules) can be found in the valid version of the respective module catalog that is referred to in the annex of the module catalog MMDS (external module catalog).

(3) ¹As a rule, the majority of the modules are taught in English; elective modules may also be taught in German. ²The language of instruction of a module is indicated in the MMDS module catalog; for the imported elective modules this is indicated in the external module catalog. ³If a module is designated as an English-

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taught module in the module catalog, the course which belongs to it is held completely in English. All of the coursework and examinations (preliminary coursework and examinations) for this course are to be completed in English. ⁴Examinations without corresponding course are to be completed in English.

Section 4 – Standard Period of Study, Maximum Period of Study

- (1) The period of study for the master's program, during which all coursework and examinations required to pass the master's examination are to be completed, is four semesters (standard period of study).
- (2) ¹All coursework and examinations that must be completed as a part of the master's examination must be completed within a given time (maximum period of study). ²The maximum period of study ends three semesters after the standard period of study at the end of the seventh semester, unless the student is not responsible for having exceeded this time. ³The student will be notified by the examination committee if they have exceeded the deadline; eligibility to take exams is lost in accordance with section 32 subsection 5 sentences 4 and 5 in accordance with sentence 3 alternative 2 LHG.
- (3) ¹At the beginning of their studies, students are recommended to seek academic advice for orientation purposes. ²This serves to help them to draw up their individual degree plans according to the scope of the Examination Regulations. ³If a student does not pass the master's examination until the end of their sixth semester of the program, the student is recommended to seek academic advice again. ⁴The examination committee is in charge of academic advising. ⁵It may pass on the task to qualified staff members.
- (4) The student is responsible for meeting the deadlines listed in these Examination Regulations.

II. Organization and Administration of Examinations, Recognition of Coursework and Examinations

Section 5 – Examination Committee

- (1) ¹An examination committee is formed for the "Mannheim Master in Management" program. ²It is composed of three university teachers or senior academic staff members (Privatdozenten) who are eligible to vote, at least two of which must be from the School of Business Informatics and Mathematics, and a student member exercising an advisory function. ³The members of the examination committee are appointed by the school council of the School of Business Informatics and Mathematics.
- (2) ¹The term of office of members who are eligible to vote is three years. The student member's term of office is one year. ²All members can be reappointed. ³The committee members' term of office starts on 1 August of each year. ⁴If a member of the examination committee retires from their position before the end of the term of office, a successor is appointed for the remaining term of office.
- (3) ¹The school council of the School of Business Informatics and Mathematics elects a member of the examination committee to be the chair and another member to be vice chair for the duration of their term of office. The chair manages the examination committee.
- (4) ¹The examination committee has a quorum if the chair or the deputy chair and at least another member who is eligible to vote are present. ²Decisions require a simple majority of votes from the members present. ³In the event of a tie, the vote of the chair decides the matter.
- (5) ¹The members of the examination committee are obliged to exercise discretion. ²If they are not employed in the public service, they must be obliged to exercise discretion by the chair of the examination committee in writing. ³This obligation applies to all examination-related facts and matters
 1. that the members were informed about in a non-public meeting and/or that happened to be discussed,
 2. that are to be kept secret by law,
 3. that were ordered or decided to be kept secret for the public good or in order to protect the legitimate interests of an individual,
 4. that are to be kept secret by their nature.

⁴The obligation to exercise discretion continues after the term of office and includes discussion-related documents.

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Section 6 – Competences of the Examination Committee

(1) ¹The examination committee makes all decisions regarding these Examination Regulations if no other entity is responsible. ²The examination committee enforces the examination regulations. ³By way of a resolution, the committee can entrust the chair with certain tasks that the committee is normally in charge of:

1. Appointment of examiners and observers,
2. Decisions on the recognition of coursework and examinations,
3. Decisions on the approval of reasons for de-registration and absence,
4. Decisions on disadvantage compensations,
5. Decisions on the extension of deadlines,
6. Decisions on breaches of procedure,
7. Declaring the failure of the final examination attempt,
8. Declaring the exceeding of the maximum period of study,
9. Assigning students to a Team Project and informing the Student Services of the topic, the duration of the preparation period and the group members of the Team Project,
10. Assigning students to the dates of the block courses in the module "Scientific Research" and informing the Student Services about this,
11. Assigning students to a seminar in the module "Seminar",
12. Declaring the registration period for the Team Projects, assigning students to a Team Project and informing the Student Services of the topic, the duration of the preparation period and the group members of the Team Project,
13. Decisions in appeal procedures.

⁴The resolution may be revoked at any time.

(2) In order to support the examination committee, an office may be established whose staff is mainly in charge of proceedings on behalf of the chair or their deputy.

Section 7 – Examiners and Observers

(1) ¹Only university teachers, auxiliary professors (außerplanmäßige Professoren), honorary professors and senior academic staff members (Privatdozenten) as well as those academic members of staff who have been appointed by the President's Office in accordance with section 52 subsection 1 sentences 5 and 6 LHG are authorized to administer preliminary coursework and examinations. ²A person may only act as an observer if they have at least completed a master's degree or an equivalent degree at a higher education institution successfully or are certified by the state in the field of the examination.

(2) ¹Usually, the teacher responsible for each course is appointed as examiner. ²For examinations without corresponding course, such as the examinations in the modules "Team Project", "Individual Project" and "Master's Thesis", the regulations for examiners according to section 15 subsection 4 sentence 1, section 16 subsection 3 sentence 1 and section 18 subsection 2 sentences 1, 2 and 5 remain unaffected.

(3) Every examiner may make use of one or several assistants for the correction of examinations; they must ensure competent evaluation.

(4) Examiners, observers, and assistants for the correction of examinations are obliged to exercise discretion in accordance with section 5 subsection 5.

(5) For the preliminary coursework and examinations of the imported elective modules (imported elective examinations), the regulations for examiners and observers apply as they are stipulated in the current version of the respective examination regulations which are referred to in the external module catalog (external examination regulations).

Section 8 – Competences of the Student Services

(1) The Student Services are in charge of the administration of the examinations.

(2) In particular, the Student Services

1. determine and announce registration deadlines, examination dates and rooms,

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2. announce the names of the examiners and notify them about the examination,
3. receive examination registrations from students, unless students register with the examiner,
4. enter the admissions and rejections for examinations into the system,
5. carry out compulsory registration,
6. maintain student examination records,
7. enforce the deadlines specified in these Examination Regulations,
8. are in charge of technical administration of all examinations and coordination of supervision for written examinations,
9. issue and hand out official documents, degree certificates and confirmations on coursework and examinations along with attachments.

Section 9 – Recognition of Coursework and Examinations

(1) Coursework and examinations as well as periods of study obtained in other degree courses at official or officially recognized higher education institutions in Germany or abroad as well as at public universities of cooperative education (Berufsakademien) of the Federal Republic of Germany are recognized, provided there is no significant difference between the competences obtained and the coursework or examinations.

(2) ¹For the recognition of coursework, examinations and semesters completed abroad, agreements between the Federal Republic of Germany and other countries need to be taken into account, such as agreements on equivalencies in higher education (equivalency agreements) and agreements within the framework of university partnerships and double degree programs (cooperation agreements). ²Furthermore, in cases of doubt regarding the equivalency of qualifications, the Central Office for Foreign Education (Zentralstelle für ausländisches Bildungswesen - ZAB) can be consulted.

(3) ¹Skills and qualifications obtained outside of the higher education sector are to be recognized if

1. the requirements for admission to a higher education institution are fulfilled at the time of recognition,
2. the skills and qualifications to be recognized are equivalent to the coursework and examinations to be substituted in terms of content and level, and
3. the criteria for recognition were examined as part of an accreditation.

²For recognition, the applicant has to prove that the competences they acquired outside of the higher education sector are comparable to the coursework and examinations to be substituted in terms of content and level. ³For the decision on the recognition, the form of instruction must be considered as well. ⁴Skills and qualifications obtained outside of the higher education sector may substitute 50 percent of the master's program at most. ⁵The regulations for the recognition of coursework and examinations at public universities of cooperative education (Berufsakademien) in Germany remain unaffected.

(4) ¹The examination committee decides on the recognition upon written request of the student. ²It is the student's responsibility to provide the examination committee with the necessary documents for the recognition of coursework and examinations.

(5) ¹If coursework and examinations are recognized and the grading systems are similar, the grades must be transferred according to these Examination Regulations and considered for calculation of the final grade. ²In order to guarantee a consistent procedure, the examination committee can pass general regulations for the conversion of grades obtained abroad within the limits of the legal provisions. ³If conversion is impossible because the grading systems differ or the coursework or examination was not graded, the work is simply marked "passed" ("bestanden"). ⁴In this case, the coursework or examination will not be included in the final grade. ⁵The recognition is indicated in the degree certificate and in the Transcript of Records.

(6) In case the student takes part in an examination at the University of Mannheim even though they already obtained the respective qualification elsewhere, they automatically waive the right to have the previous qualification recognized.

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III. Examination Process

Part 1: Admission requirements and Examinations

Section 10 General Information

(1) The examinations that are to be completed as a part of the master's examination, excluding the examinations Team Project, Individual Project and Master's Thesis, are assigned to the individual courses within the modules.

(2) The module catalog MMDS may include requirements to be fulfilled (required preliminary coursework) as well as further requirements in order to be admitted to an examination held by the School of Business Informatics and Mathematics. ²The admission requirements for imported elective examinations can be found in the external module catalog.

(3) ¹An examination as defined in these Examination Regulations usually involves completing one or several individual tasks. ²The elective examinations must be composed as stipulated in the respective regulations of the external module catalog. ³Group examinations are permitted unless they are incompatible with the actual form of the examination. ⁴If an examination is completed in a group, the final topic of the group examination and the assignment of respective tasks to the students must be determined by the examiner. ⁵In case of group examinations, the individual contribution of each student to the examination must be evaluated; it must be ensured that within the joint preparation of a topic the individual contribution of each group member can clearly be separated and evaluated individually. ³The respective stipulations that are set out in the external examination regulations are the basis for the specifications of the individual examinations of the imported elective examinations.

(4) ¹The composition of the individual examinations in the mandatory and elective modules (mandatory and elective examinations) as well as the type, form and scope or duration of the respective examinations are stipulated in the examination regulations. ²If these examination regulations include alternative options for an examination, the specific examination for the respective semester can be found in the module catalog MMDS. ³In order to determine the composition of the specific examination in all seminars for each semester, sentence 2 applies accordingly. ⁴The composition of the individual examinations in the elective modules (elective examinations) as well as the type, form and scope or duration of the respective elective examinations from the department of Informatics are stipulated in the examination regulations in connection with the module catalog MMDS and for the imported elective examinations this is stipulated in the external module catalog.

(5) ¹Written examinations serve to prove the student's ability to solve a problem by independently applying the common methods of the field in a limited period of time and with a limited amount of authorized materials. ²The examiner determines the authorized materials and informs the students about it using appropriate means in due time before the examination.

Section 11 – Registration and Admission to Examinations; Examination Dates

(1) ¹Students need to register for all examinations. ²It is the students' responsibility to register for an examination. ³If students fail an examination in the first attempt or if this attempt or the re-sit examination are deemed not taken, they will automatically be registered for the next regular examination date or it is their own responsibility to register again.

(2) ¹Students need to register for their examinations at the Student Services within the registration period that is determined by the Student Services, except if the examination takes place before the start of the registration period (subsection 3) or if the examination regulations stipulate that students need to register for their exam with their examiner or the examination committee. ²The Student Services can extend the registration period (late registration). ³After the registration period has closed, students can only withdraw from an exam within a period that is determined by the Student Services (withdrawal). ⁴Once the withdrawal period has closed, the registration for an examination attempt is binding.

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(3) ¹If the examination takes place before the start of the registration period that is determined by the Student Services and the students are therefore unable to register in the student portal before the examination, the students are registered bindingly as soon as they accept the task of the examination from the examiner (participation in the examination). ²In this case, students are admitted to the respective examination by the examiner as soon as they are given the task; it is the students' responsibility to provide the examiner with the information that is required for their admission. ³Students must indicate in the student portal that they participate in an exam within the registration deadline, the only exception is when they participate in the exam in the module "Scientific Research". ⁴In case students must register with the examiner or the examination committee, sentences 1 to 3 apply accordingly.

(4) The examination registration and the examination procedures in the modules "Team Project", "Individual Project", "Seminar" and "Master's Thesis" are subject to the regulations that are set out in section 15 to 18 apply.

(5) If an examination from the department of Informatics comprises of one component, the following examination procedures must be observed:

1. supervised, written exam

- a. ¹ The regular examination date of a semester must take place at the start of the semester break and the alternate examination date must take place before the following lecture period begins or at the latest during the first week of the lecture period of the following semester. ²There must be at least three weeks time between announcing the results from the regular examination date and the alternate examination date. ³The alternate examination date counts for the semester in which the regular date took place. ⁴In deviation from this rule, the examination dates for the written exam in the module "Scientific Research" are scheduled after the block course which takes place several times per semester.
- b. ¹Students can decide on their own if they want to participate in the regular or the alternate examination date for the modules CS 500, CS 530, CS 550, CS 560, IE 560, CS 460 and MAC 404. ²For all other written exams, students can only register for the regular examination date of each semester. ³For the written exam in the module "Scientific Research", students can only register for the exam that is scheduled after the block course that they were assigned to.
- c. ¹For the written exam in the module "Scientific Research", students register for the examination at the examination committee by choosing a date for the block course. ²Once the students are assigned to the date of a block course, their registration for the related examination is binding and the students are admitted; this also applies if the students are assigned to another date than they chose.
- d. If an examination is divided into two parts for the regular examination date, the first part is to be taken during the course of the semester while the second part is to be taken on the date of the regular examination date as defined in letter a sentence 1; for the alternate examination date both parts are to be taken together.
- e. ¹If an examination attempt was failed or deemed not taken, the students are automatically registered for the next examination date, provided that they are eligible for a further examination attempt. ²However, the students will not be automatically registered for the examination in the module "Scientific Research"; the students are responsible for registering again for the next possible date of the block course and the related examination date.

2. oral examination

- a. ¹The regular examination date of a semester must take place until the end of the semester in which the course was taken. ²The alternate examination date of a semester must take place before the following lecture period begins or at the latest during the first week of the lecture period of the following semes-

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ter. ³There must be at least three weeks time between announcing the results from the regular examination date and the alternate examination date. ⁴The alternate examination date counts for the semester in which the regular date took place.

- b. ¹Students can only register for an examination for the regular examination date. ²The examination must be registered with the examiner. ³The registration is binding as soon as the student is informed of the examination date.
- c. If students fail an examination in the first attempt or if this attempt or the re-sit examination are deemed not taken, they will automatically be registered for the next possible examination date.

(6) If an examination from the department of Informatics comprises of several components, the following examination procedures must be observed:

- 1. The examination registration according to subsections 2 and 3 must be completed before the first component is completed.
- 2. ¹If the examination comprises of several components that must be completed during the semester as well as of a written exam, the written exam must be taken on the regular examination date according to section 5 number 1 letter a sentence 1; all other components are to be completed during the semester (examination date of a semester). ²Students can only register for the examination date of a semester. ³If a student fails the first attempt at an examination or the attempt is deemed not taken and the student has another attempt, they are registered automatically for the next possible examination date. This next possible examination date must be at the earliest occasion during the course.
- 3. ¹If an examination only comprises of components that must be completed during the semester, these must be completed during the semester (examination date of a semester). ²Students can only register for the examination date of a semester. ³If a student fails a first attempt at an examination or the attempt is deemed not taken and the student has another attempt, they need to retake the examination at the earliest occasion during the course. ⁴It is the students' responsibility to register for the next examination attempt.

(7) When registering for an imported elective examination and for the related examination procedures, the regulations that are set out in the external examination regulations must be observed.

(8) ¹Students are only admitted to an examination if they

- 1. are enrolled in the "Mannheim Master in Data Science" master's program,
- 2. meet the requirements for the examination in question, having successfully completed any preliminary coursework, and
- 3. did not already fail the final examination attempt for the examination that they want to be admitted for in this degree program or in another degree program.

²It is the students' responsibility to provide the office at which they register for the examination with all necessary documents for their admission. ³For the admission to the examinations "Team project", Individual Project", in the seminars and the master's thesis, the regulations as set out in sections 15 to 18 apply accordingly. ⁴In all other respects, students are admitted to the written exam in the module "Scientific Research" once the examination committee assigns them to a course with the respective examination.

Section 12 – Type and Form of Coursework and Examinations

(1) Intended coursework and examinations in the department of Informatics are

- 1. written tasks in the form of written examinations, term papers, project reports, peer reviews and master's thesis;
- 2. oral tasks in the form of presentations and oral examinations;
- 3. electronic tasks in form of programming exams and programming projects;
- 4. practical tasks in the form of project-related papers.

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- (2) Apart for the required preliminary coursework to be fulfilled, examiners may include further requirements in the module catalog MMDS in order to be admitted to an examination such as homework, practical programming projects, written and oral reports.

Section 13 – Oral Examinations

(1) ¹Oral examinations are conducted by an examiner in the presence of an observer. ²Observers have an advisory role in the oral examination. ²Oral examinations are usually conducted as an individual assessment. ³Oral examinations must last at least 15 and no more than 45 minutes. ⁴In individual cases, the oral examination can be conducted with several examinees as a group assessment; this decision is made by the examiner. ⁵The duration of a group assessment must allow for each student to be examined for at least 15 minutes and no more than 45 minutes.

(2) ¹Minutes from the examination (Ergebnisprotokoll) are to be taken during the main course of the oral examination. ²For oral examinations, the examiner must bring in a person familiar with the field of study as secretary to take the minutes. ³The secretary may act as an observer at the same time. ²The result from this examination, which must be communicated to the student shortly after its completion, is to be recorded in the minutes. ³The minutes are to be signed by the examiner, the secretary and the observer, and must be included in the examination records.

Section 14 – Written Examinations

(1) Written examinations must last at least 20 and no more than 180 minutes.

(2) ¹As a rule, written examinations must not be conducted in the form of multiple-choice examinations. ²In justified cases, written examinations may be conducted completely or in part as multiple-choice examinations. ³Should an examination be conducted as multiple-choice throughout, the tasks must allow for reliable examination results. ⁴When designing the examination, the examiner must determine which answers are accepted as correct and how the scoring system works. ⁵If, during the assessment of the examination, it turns out that single exercises do not lead to reliable results, they must not be considered for the calculation of the examination's result. ⁶The minimum passing score is to be adjusted accordingly; lowering the passing score must not have negative implications for the students. ⁷The examination is passed if a student achieves at least the minimum passing score determined before the exam. If a student does not achieve the minimum passing score, they might still pass the exam provided their performance was good enough to be among the set minimum rate of students that will pass the exam regardless of the results (pass rate; pass rate + failure rate = 100%). ⁸If the examination is only partly multiple-choice, the regulations of this section apply to that part respectively.

(3) The examination supervisors must take minutes for each written examination. The minutes must be signed and included in the examination records unless the type of examination is not suitable for minutes.

(4) ¹When evaluating a project-related paper, a written draft paper, a term paper or similar pieces of work for academic performance, the examiner is to ascertain the quality of research and the quality of academic work. ²If data and implementations are to be submitted, the student must provide them to the examiners in adequate form when submitting the written tasks. ³The examiner informs the students at the latest if this is necessary when they give them the topic for the written task. ⁴The students are responsible for providing the required information outlined in sentence 2.

(5) ¹When grading term papers or an equivalent, the examination committee and the examiners are authorized to use software to detect plagiarism. ²For the grading of their work, students must submit a digital data file and a hard copy of their work to the examiners. ³The work must be anonymized before the plagiarism check. ⁴When submitting coursework as defined in sentence 1, the student must submit the following signed declaration:

"I hereby declare that the paper presented is my own work and that I have not called upon the help of a third party. In addition, I declare that neither I nor anybody else has submitted this paper or parts of it to obtain credits elsewhere before. I have clearly marked and acknowledged all quotations or references that have been taken from the works of others. All secondary literature and other sources are marked and listed in the bibli-

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ography. The same applies to all charts, diagrams and illustrations as well as to all Internet resources. Moreover, I consent to my paper being electronically stored and sent anonymously in order to be checked for plagiarism. I am aware that if this declaration is not made, the paper may not be graded."

Section 15 – Examination in the Module Team Project

- (1) ¹The Team Project is a mandatory elective module in the area Projects and Seminars with an examination of the same title. ²By passing the examination in the module Team Project, the student must prove their ability to contribute to a significant major research project as a member of a group. ³This contribution includes a written work on the research question or development task as well as a presentation of (preliminary) findings.
- (2) ¹The examination Team Project consists of a paper and an oral examination and a presentation based on the first part of the examination. ²The paper as well as the presentation are group work. The group size must not exceed twelve members.
- (3) ¹The Team Projects available each semester are defined by the examiners offering the Team Project and announced using appropriate means in due time before the examination, usually at the beginning of the lecture period of the respective semester. ²The examiner must define the topic, the minimum and maximum number of participants, the duration of the Team Project as well as the weighting of the individual examination components for the calculation of the examination grade.
- (4) ¹The teacher who assigns the topic of the Team Project to the participants will be the examiner. ²The examiner is also the supervisor and may assign further persons as supervisors who have completed at least a master's degree or an equivalent degree at a higher education institution successfully. ³The supervisor advises students on any questions on the production of the written work; the individual performance and the student's self-reliance for the examination must be maintained.
- (5) ¹The student is responsible for registering for each attempt at the examination Team Project with the examination committee in due time before the start of the preparation period for the Team Project and within the registration period set by the examination committee; this also applies if an attempt has been deemed not taken. ²Students must be granted the chance to make suggestions which Team Project they want to be assigned to; however, no legal right arises to be assigned to the suggested Team Project. ³Once a student has been assigned to a Team Project, the student is admitted to the examination. ⁴The tasks to be completed by individual students for the written work of the Team Project must be assigned in agreement with the examiner. ⁵The date of the examination will be set by the examiner in consultation with the group.
- (6) ¹The Team Projects are either completed at the end of the subject-specific semester or at the end of the following semester (preparation period of the Team Project). ²The workload per semester depends on the length of the preparation period of the Team Project; the total workload, regardless of the length of the preparation period, is the same. ³The preparation period of the examination for the Team Project begins once students are assigned to a Team Project and ends on the following 31 January or 31 July, depending on the preparation period.
- (7) ¹The topic of the Team Project may be returned once per student during the master's program. ²For Team Projects with a duration of one semester, the topic must be returned within the first three weeks, for Team Projects with a duration of two semesters it must be returned within the first six weeks after assignment. ³If the topic is returned in time, the attempt is deemed not taken. ⁴In these cases, the student may begin a new attempt within the same semester (swap) if they register for the new Team Project within the return period, the minimum number of participants but not the maximum number of participants for the new Team Project has been reached by the time of registration and there are no academic reasons to decline admission to the new Team Project, especially the work progress of the current group. ⁵If multiple students register for the same new Team Project in due time, their registrations are considered in chronological order by the date of receipt. ⁶If a student is admitted to a new Team Project in the same semester, the same duration of the preparation period applies to the student as applies to the group members assigned to the Team Project according to subsection 6; the preparation period cannot be extended due to a swap.
- (8) ¹If the attempt for the examination Team Project is deemed not taken for one or more members of a group, the examiner is to ensure that the remaining group members are still able to continue their examination. ²In

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particular, the scope of the project may be adapted to the smaller group size. ³Sentences 1 and 2 also apply if the minimum group size requirement is no longer fulfilled as a consequence.

(9) ¹Two hard copies and one digital copy of the written work must be submitted and the presentation must be held no later than by the end of the preparation period. ²If one of the tasks of the examination is not completed in due time, it will be graded "failed" (5.0, "nicht bestanden") for the respective student. ³If the tasks of the examination are completed successfully, the examiner grades each task for each group member with a grade according to section 19 subsection 2 and determines the grade for each participant. ⁴This must be done based on the individual grades of the written work and the presentation.

(10) After the end of the return period, the Student Services must be informed about the topic and the preparation period of the Team Project as well as about the remaining group members.

Section 16 – Examination in the Module Individual Project

(1) ¹The Individual Project is a mandatory elective module in the area Projects and Seminars with an examination of the same title. ²By completing the Individual Project, the students are to prove that they acquired the skills and proficiency to analyze a theoretical or practical problem from the field of data science independently and to plan, implement and present a solution for this problem by using scientific methods.

(2) The examination Individual Project consists of a project report and a presentation based on the first part of the examination; group work is not permitted.

(3) ¹The teacher who assigns the topic of the Individual Project to the participants will be the examiner. ²The examiner is also the supervisor. ³As supervisor the examiner advises students on any questions to do with completing the project report; the individual performance and the students' self-reliance for the examination must be maintained.

(4) ¹The student is responsible for registering each attempt of the Individual Project with the examiner; this also applies if an attempt has been deemed not taken. ²Outside the registration periods of the Student Services, the students can register their Individual Project with the examiner. ³The examiner determines the topic of the Individual Project. ⁴Students must be granted the chance to make suggestions for their topic; however, no legal right arises to be assigned to the suggested topic. ⁵Once the examiner assigns topics for the Individual Project to the students, the students are registered bindingly for the examination and the students are admitted to this examination. ⁶The date of the presentation will be set by the examiner in consultation with the student.

(5) ¹The preparation period for the examination Individual Project is six months. ²The preparation period begins once the student is admitted to the examination. ³Two hard copies and one digital copy of the project report must be submitted to the examiner and the presentation must be held no later than by the end of the preparation period.

(6) The Student Services must be informed about the topic of the Individual Project, about the date when the student was assigned to a topic as well as about the date when the last task of this examination was completed.

Section 17 – Examination in the Module Seminar

(1) ¹By completing this mandatory examination, the students are to prove that they acquired the skills to read academic literature about a specialist subject and to apply the content to an issue as well as to present and discuss the scientific issue. ²The examination in the module Seminar consists of a written work about a topic that is assigned to the students as well as of a presentation about a preliminary or a final version of this written work which may be complemented by peer reviews.

(2) ¹The students have two attempts to successfully complete the examination in the module Seminar. ²The students are responsible for registering for each attempt of the examination in the module Seminar with the examiner; outside the registration periods of the Student Services, the students can register their examination with the examiner. ³At the beginning of a seminar, the examiner assigns topics to the students and determines the date of the presentation. ⁴Once the students receive their topic they are registered bindingly for the examination and are admitted to the examination in the the module Seminar. ⁵If an examination attempt was failed or deemed not taken, the student must retake the examination in one of the following semesters in another seminar

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and is responsible for registering again with the examiner; an additional attempt in the same seminar is not possible.

(3) The Student Services must be informed about the students who are admitted to each seminar.

Section 18–Examination in the Module Master's Thesis

(1) ¹The master's thesis is a mandatory module with an examination of the same title. (2) By completing the master's thesis, the students are to prove that they have acquired the skills and proficiency to work independently on scientific and subject-specific questions in their field of study by using scientific methods within a limited period of time. ³This examination must be completed as an individual examination.

(2) ¹The master's thesis will be evaluated by two examiners. ²The university teacher who assigns the topic of the master's thesis to the student is the main examiner. ³The main examiner is also the supervisor and may assign further persons as supervisors who have completed at least a master's degree or an equivalent degree at a higher education institution successfully. ⁴The supervisor advises the student on any questions to do with the production of the master's thesis; the individual performance and the students' self-reliance for the thesis must be maintained. ⁵The second examiner is appointed by the head of the examination committee based on the recommendation of the main examiner.

(3) ¹The student is responsible for registering each attempt of the master's thesis with the main examiner in due time; this also applies if an attempt has been deemed not taken. ²To be permitted to write the master's thesis, the student must obtain at least 60 ECTS credits; the ECTS credits obtained in the area "Fundamentals" may not be taken into account for the admission requirement of 60 ECTS credits. ³The student is responsible for providing the main examiner with the information required for admission; in particular, a Transcript of Records is to be submitted. ⁴The main examiner ensures that this requirement has been fulfilled before allocating the topic to the student. ⁵Once the topic has been assigned to a student, the exam registration is binding and the student is admitted to write their master's thesis.

(4) ¹The main examiner determines and allocates the topic to the student. ²Students must be granted the chance to make suggestions for their topic; however, no legal right arises to be assigned to the suggested topic.

(5) ¹The preparation period for the master's thesis is six months. ²The preparation period begins once the topic of the master's thesis has been allocated to the student. ³In case of valid reasons and upon written request from a student, which must be submitted in due time, the preparation period may be paused and the submission deadline extended for a period that is to be determined on a case-by-base basis. ⁴A request must be submitted to the examination committee immediately once the student is aware of the circumstances justifying an extension and is only possible within the preparation period. ⁵Should the request not be made in due time within the meaning of sentence 4, the circumstances justifying a pause are considered irrelevant for the examination attempt concerned. ⁶If the preparation period must be paused and the submission deadline be extended due to professional reasons, sentences 3 to 5 apply accordingly provided that the main examiner agrees. ⁷Sections 25 and 26 remain unaffected.

(6) ¹The master's thesis must be submitted in due time to the main examiner in duplicate as a hard copy and as a digital data file. ²The student must submit a declaration according to section 14 subsection 5 when submitting their master's thesis.

(7) ¹When evaluating the master's thesis for academic performance, section 14 subsection 4 applies accordingly. ²If data and implementations must be submitted, the examiner informs the student of their requirement no later than when the topic is allocated.

(8) ¹If the master's thesis is not submitted completely in due time under consideration of subsection 7, it will be graded "failed" (5.0, "nicht ausreichend"). ²A master's thesis submitted completely in due time will be evaluated by both examiners of the master's thesis. ³If the grades given by the two examiners differ, the grade awarded for the master's thesis must be the grade as defined in section 19 subsection 2 which comes closest to the arithmetic average of both individual grades. If in doubt, the better of the two grades is to be awarded. ⁴If the calculated average in line with sentence 3 is 4.1 or worse, the master's thesis is graded 5.0 ("nicht ausreichend").

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(9) The topic of the master's thesis, the date on which the student was issued the topic and the date on which the thesis is to be submitted are to be communicated to the Student Services.

Section 19 – Grading of Examinations and Coursework, Calculation of Grades for Individual Examinations and Coursework and Module Grades

(1) ¹The examiner assesses examinations or coursework either with a grade (examination) or without a grade with "(not) passed" (coursework or examination). ²The assessment is to be completed within four weeks; within two months for the master's thesis. ³If coursework or an examination is not completed in due time, it is considered "failed" or graded 5.0 ("nicht ausreichend").

(2) ¹The following grades may be assigned:

<i>Numerical Value</i>	<i>Grade</i>	<i>Explanation</i>
1.0 or 1.3	very good ("sehr gut")	an excellent performance
1.7; 2.0 or 2.3	good ("gut")	a performance which substantially exceeds the average requirements
2.7; 3.0 or 3.3	satisfactory ("befriedigend")	a performance corresponding to the average requirements
3.7 or 4.0	fair ("ausreichend")	a performance which, in spite of its flaws, suffices to meet the requirements
5.0	failed ("nicht ausreichend")	a performance which does not meet the requirements due to considerable flaws

²For grading the master's thesis, section 18 subsection 8 sentences 2 to 4 remain unaffected.

(3) If an examination comprises of only one component, the overall examination grade equals the grade of the component.

(4) ¹If an examination comprises of several components, the overall examination grade equals the grade closest to the weighted average grade calculated using the grades of the components. ²The weighted average grade is calculated to one decimal place; all further decimal places are excluded without rounding. ³The examination grades according to their weighted average are:

1.0 up to and including 1.1	= 1.0
above 1.1 and up to and including 1.5	= 1.3
above 1.5 and up to and including 1.8	= 1.7
above 1.8 and up to and including 2.1	= 2.0
above 2.1 and up to and including 2.5	= 2.3
above 2.5 and up to and including 2.8	= 2.7
above 2.8 and up to and including 3.1	= 3.0
above 3.1 and up to and including 3.5	= 3.3
above 3.5 and up to and including 3.8	= 3.7
above 3.8 and up to and including 4.0	= 4.0
4.1 or worse	= 5.0

⁴The weighting of individual examination and coursework components for the calculation of the respective grade are determined in the MMDS module catalog; section 15 subsection 3 sentence 2 remains unaffected.

(5) For the grading of imported mandatory examinations and the corresponding preliminary coursework as well as for the calculation of the examination grades only the regulations that are set out in the external examination regulations apply.

(6) The module grade equals the examination grade.

Section 20 – ECTS Credits

¹The examination must be passed for ECTS credits to be awarded. ²The examination process ends when the examination is passed.

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Section 21 – Failing and Redoing Coursework or Retaking Examinations (including Examinations and Preliminary Coursework), Failing the Final Examination Attempt

- (1) Failed examination or coursework are those that are graded "failed" ("nicht bestanden") or 5.0 ("nicht ausreichend").
- (2) ¹If an examination consists of one piece of coursework or one examination, it is considered "failed" ("nicht bestanden") if said piece of coursework or examination has been failed. ²If an examination consists of several pieces of coursework or examinations, the examination is failed if the calculated examination grade equals "5.0" ("nicht ausreichend").
- (3) ¹Coursework or examinations which were done as required preliminary coursework for an examination and subsequently failed may be redone; it is not possible to redo the preliminary coursework in the same semester. ²If the student passes the preliminary coursework for an examination but fails the related examination in the same semester or if the attempt on the last possible examination date of the semester is deemed not taken, the required preliminary coursework usually must be redone and passed. ³The examiner of the retake examination decides on exceptions upon request of a student. ⁴The request is to be submitted in due time and before the examination in question takes place, otherwise the preliminary coursework is to be redone.
- (4) ¹Failed examinations may generally be retaken once (re-sit examination). ²If a student fails an examination in the resit examination, this examination is failed with no option to re-sit. ³Failing the final attempt at an examination terminates the examination process.
- (5) ¹When retaking an examination consisting of several components, all examination components are to be retaken. ²It is not possible to retake an examination that has already been passed.

Section 22 – Breaches of Procedure

- (1) ¹The examination committee may remedy disturbances of the examination procedure or other breaches of procedure by virtue of office or upon request from a student by deciding on appropriate measures or orders. ²In particular, the examination committee may order that coursework or examinations must be retaken by all or by individual students or, in case the principle of equal opportunity was violated, grant an extension or impose another appropriate measure of compensation.
 - (2) ¹Any disturbances are to be reported immediately by the affected student during a written or oral examination:
 1. in case of a written examination to the supervisor,
 2. in case of an oral examination to the examiner and
 3. in case of any other type of examination to the responsible examiner.
- ²Any other kinds of breaches of procedure are to be reported by the affected student in due time as soon as the student takes note of a particular breach of procedure. ³The reports according to sentences 1 and 2 must be entered into the examination minutes. ⁴If the disturbances of the examination procedure or any other kind of breaches of procedure relevant to the evaluation of the respective examination are not reported in due time, they are deemed insignificant.
- (3) ¹If the examination committee did not take measures of compensation in accordance with subsection 1 for a disturbance that occurred during an examination and was reported without delay or for other breaches of procedure, or those measures were inadequate, the student must address their request for the necessary measures of compensation to the examination committee in writing immediately after the examination. If the examination consisted of several parts, the request must be made immediately after the relevant part of the examination. ²The request must not contain any conditions. ³If the disturbances of the examination procedure or any other kind of breaches of procedure relevant to the evaluation of the respective examination are not reported in due time, they are deemed insignificant.

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Section 23 – Access to Examination Records

(1) The students must be granted access to their graded written examinations upon written request submitted within an appropriate period of time. This includes the written examination, the respective evaluation(s) of the examiner(s) and the minutes of each examination.

(2) ¹The request must be submitted to the chair or the Student Services within one year after having received the result of the respective examination. ²They decide on the time and place for accessing the examination records.

Part 2 – Disadvantage Compensation

Section 24 – Extending the Maximum Period of Study

(1) The examination committee may extend the maximum period of study upon written request from a student, which is submitted in due time, if the respective student is in need of an extension due to special conditions they are not responsible for. The examination committee may grant individual extensions based on case by case decisions.

(2) ¹In particular, this applies to students

1. with children, or
2. with a relative in need of care within the meaning of section 7 subsection 3 of the caregiver leave act (Pflegezeitgesetz, PflegeZG), and for students
3. with a disability, or
4. with a chronic illness

if the situation resulting from the aforementioned special conditions requires an extension of the examination deadlines. ²The same applies to students who are eligible for periods of protection in accordance with section 3 subsections 1 and 2 of the maternity protection act (Mutterschutzgesetz, MuSchG).

(3) ¹A request in accordance with subsection 1 must be submitted immediately as soon as the student is aware of the circumstances demanding an extension of examination deadlines. ²If the request is not made in due time in accordance with sentence 1, the extension may only be granted if additional requirements according to section 32 of the administrative procedure act of the Land of Baden-Württemberg (Landesverwaltungsverfahrensgesetz, LVwVfG) are met.

(4) ¹The student requesting the extension is responsible for producing adequate proof. ²If there are significant changes to the personal situation of the student, particularly any changes that would result in a lapse of entitlement to the extension, the student is obliged to inform the examination committee without delay.

(5) The extension of the maximum period of study must not exceed the standard period of study provided there are no legal regulations indicating otherwise.

(6) ¹The preceding subsections do not apply to extensions of preparation periods and submission deadlines for examinations or coursework. ²The option of requesting disadvantage compensation in accordance with section 25 remains unaffected.

(7) When calculating the maximum period of study, section 32 subsection 6 LHG must be taken into consideration.

Section 25 – Disadvantage Compensation

(1) ¹If students, as a result of a special condition or situation within the meaning of section 24 subsection 2, cannot take the respective examination or complete a piece of coursework, in particular due to the form of examination, they can request disadvantage compensation. Students must submit the request for disadvantage compensation in due time and in writing. In coordination with the respective examiners, the examination com-

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mittee grants the appropriate disadvantage compensation in order to adhere to the principle of equal opportunity. ²Disabled students or students with a chronic illness must submit their request for disadvantage compensation to the commissioner and counselor for disabled students and students with chronic illnesses. The examination committee is obliged to take the recommendation of the commissioner and counselor for disabled students and students with chronic illnesses into account in their decision making process.

(2) ¹A request as outlined in subsection 1 is to be made in due time before the coursework or examination concerned is started. Where it is the responsibility of the student to register for coursework or an examination, the request is to be submitted by the end of the registration period at the latest. ²If the request is not made in due time in accordance with sentence 1, the extension may only be granted if additional requirements according to section 32 LVwVfG are met. ³If students fail to submit the request for disadvantage compensation in due time in accordance with sentences 1 or 2, the special circumstances will not be considered for the evaluation of the respective coursework or examination. ⁴The possibility to withdraw or de-register from an examination or piece of coursework with a valid reason remains in effect.

(3) ¹It is the student's responsibility to provide sufficient proof of their special circumstances upon filing the request for disadvantage compensation. ²If there are significant changes to the special circumstances of the student before or during the claim for disadvantage compensation, particularly any changes that would result in a lapse of entitlement, the student is obliged to inform the examination committee without delay and in writing.

Section 26 – De-registration and Absence

(1) ¹If a valid reason, especially illness, prevents the student from entirely or partially taking an examination, they may request the approval of the reasons for de-registration or withdrawal. ²If an examination comprises of several components, a request can only be submitted for the examination as a whole. ³By way of derogation from sentence 2, a separate request may be submitted once per examination attempt for the presentation in the module Team Project and in the module Seminar if the written work was passed.

(2) ¹The request must be submitted immediately and without undue delay in written form to the Student Services; the examination committee decides on the approval of the request; if a student submits a request for the examination in the module Seminar in accordance with subsection 1 sentence 3, the examiner is responsible for the decision. ²The student seeking approval is responsible for producing adequate proof. ³If the student is ill, they must submit a medical certificate to the Student Services. This certificate must include the medical diagnosis which confirms that the student is not able to take the examination. ⁴If the student has a child who is sick, or a relative who is in need of care, proof of this responsibility is to be submitted.

(3) The approval of the request is ruled out if the examination result has been published, unless valid proof could not be provided earlier by the student due to reasons beyond their control.

(4) Should the student not be able to take a mandatory examination for which they registered due to a period of study at a university abroad, this, in particular, will be recognized as a valid reason.

(5) ¹If the student took an examination whilst being aware of an illness or on the basis of negligent lack of knowledge of an illness, a de-registration for this reason cannot be approved. ²In particular, the criteria for negligent lack of knowledge are met if the student did not react to symptoms of health problems as soon as possible.

(6) ¹If de-registration is approved, the examination is to be deemed not taken and it will be mandatory for the student to register for the next possible examination date. ²If a request in accordance with subsection 1 sentence 3 has been granted, the participant remains in the examination in way of derogation from sentence 1 and is to continue with the examination at the next possible date; if the examination in the module Seminar is affected, the examiner informs the student about an alternative date in the near future.

(7) ¹If a request for de-registration is not approved, the request is deemed not made. ²In this case, the examiner grades an examination handed in by the student in due time; if the student did not hand in an examination in due time, the examination will be graded "failed" (5.0, "nicht ausreichend").

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(8) ¹The student may de-register from required preliminary coursework, which is coursework that needs to be completed for admission to an examination, without providing proof of a valid reason. ²In such cases, admission to the examination must be ruled out for the semester in question, unless, upon request from the student, the examiner responsible allows the completion of different preliminary coursework as an alternative. ³The request is to be granted if, upon consideration, the significance of preliminary coursework is relative to the reasonable interests of the student. ⁴Section 25 remains unaffected.

Part 3 – Master's Examination

Section 27 – Master's Examination

(1) The master's examination is passed if all required examinations in accordance with sections 28 to 33 in conjunction with the annex are completed within the maximum period of study.

(2) ¹If a subject area comprises elective examinations or mandatory elective examinations, the correlations within the same or between different subject areas as described in sections 28 to 33 must be considered if such examinations are passed; in case of a failure of the final attempt of such an examination, the options for compensation within the same subject area as described in sections 28 to 33 must be considered. ²This applies in particular if an elective examination is passed and therefore the maximum required coursework in the respective subject area that the passed elective examination belongs to is reached or if a student reached or exceeded the maximum number of 120 ECTS credits that can be obtained by passing elective examinations; if further elective examinations are passed in the same semester in the respective subject area or in any other subject areas, these will not be considered for the passing of the master's examination, neither for the grade in the respective area nor for the overall grade. ³If and which passed elective examinations are taken into account depends on the chronological order of the examinations taken in the respective semester. ⁴The elective examinations to be considered are used to calculate the grade for the respective subject area under which they are listed in the "Area Overview" in the annex and the module catalog MMDS. ⁵The elective examinations that are not taken into account for the master's examination are listed on the Transcript of Records as additional examinations with the respective grade. ⁶If a student is participating in any additional examination processes at the end of the examination date in the respective subject area in which they can pass an elective examination and therefore reach the maximum required coursework in this subject area but not the maximum required coursework of 120 ECTS credits, these examination processes are ended once the maximum required coursework is reached in the respective subject area.

Section 28 – The Fundamentals Subject Area

(1) In the subject area "Fundamentals" students can decide which examinations they want to register for; if the chosen examinations are passed, students can obtain a maximum of 14 ECTS credits and have these recognized for the master's examination.

(2) ¹It is the students' responsibility to choose from the available modules and examinations. ²The available elective modules from the department of Informatics including the respective ECTS credits that can be obtained can be found in the annex in conjunction with the module catalog MMDS; for imported elective modules this information can be found in the external module catalog that is mentioned in the module catalog MMDS.

(3) ¹If a final attempt of an elective examination is failed with no option to re-sit, students can decide to register for another available elective examination to obtain further ECTS credits in this subject area; it is not possible to change elective examinations beforehand. ²Students may only be permitted to take the alternative elective examination if, at this point, they can have further elective examinations in this subject area recognized for the master's examination and if, under normal circumstances, the new elective examination can be completed within the maximum period of study. ³If students fail their final attempt at an elective examination, the examination committee does not issue a notification; the students do not lose their eligibility to take exams in accordance with section 32 subsection 5 sentence 3 alternative 1 LHG.

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Section 29 – The Data Management Subject Area

- (1) ¹In the subject area "Data Management", students must complete mandatory elective examinations that amount to 18 ECTS credits for the master's examination; these mandatory elective examinations can be found in the annex. ²This subject area is completed once these examinations are passed. ³However, this subject area is not completed if a student fails a final attempt of such an examination with no option to re-sit and cannot take another examination from the area overview in order to obtain the minimum number of ECTS credits. ⁴In this case, the examination committee notifies the student in writing that the elective mandatory examinations in the subject area "Data Management" have been failed and cannot be re-taken; the student loses their eligibility to take exams in accordance with section 32 subsection 5 sentence 3 alternative 1 LHG.
- (2) ¹It is the students' responsibility to choose modules and examinations to obtain the minimum number of ECTS credits. ²The available elective modules including the respective ECTS credits that can be obtained can be found in the area overview in the annex.
- (3) ¹If a student fails a final attempt of an elective examination with no option to re-sit, they can register for another available mandatory elective examination; it is not possible to change a chosen examination beforehand. ²Aside from the additional requirements, the student may only be permitted to take the alternative mandatory elective examination if they are still able to pass the required number of mandatory elective examinations in the subject area and, under normal circumstances, the mandatory elective examination can be completed within the maximum period of study.
- (4) ¹If, by passing several mandatory elective examinations in one semester, the student obtains the minimum number of 18 ECTS credits required in this area, those mandatory elective examinations will be taken into account for this subject area which were completed first in chronological order. ²If the student passed several mandatory elective examinations in the same semester or if the student is participating in examination processes in this subject area that are not ended when they complete this subject area, these examinations are completed and considered as elective examinations, if, at this point in time, the student can still have further elective examinations recognized for the master's examination; in all other cases, the examination processes end. ³Furthermore, students can choose to deepen their qualifications and competencies after they completed a subject area and thus register for the other examinations in this subject area as elective examinations which they did not complete or fail yet if, at this point in time, they can still have further elective examinations recognized for the master's examination. ⁴Aside from the additional requirements for such an elective examination, students may only be permitted to take this examination if, under normal circumstances, it can be successfully completed within the maximum period of study. ⁵By passing these elective examinations, students can obtain another 18 ECTS credits in this subject area and have these recognized for the master's examination. ⁶If students fail their final attempt at an elective examination, the examination committee does not issue a notification; the students do not lose their eligibility to take exams in accordance with section 32 subsection 5 sentence 3 alternative 1 LHG.

Section 30 – The Data Analytics Subject Area

- (1) ¹In the subject area "Data Analytics Methods", students must pass elective examinations that amount to at least 30 ECTS credits. ²This subject area is completed once these examinations are passed.
- (2) ¹It is the students' responsibility to choose modules and examinations to obtain the minimum number of ECTS credits. ²The available elective modules from the department of Informatics including the respective ECTS credits that can be obtained can be found in the annex in conjunction with the module catalog MMDS; for imported elective modules this information can be found in the external module catalog that is mentioned in the module catalog MMDS.
- (3) ¹If, by passing several elective examinations in one semester, the student obtains the minimum number of 30 ECTS credits required in this area, those elective examinations will be taken into account for this subject area which were completed first in chronological order. ²If the student passed several elective examinations in the same semester or if the student is participating in examination processes in this subject area that are not ended when they complete this subject area, these examinations are completed and considered as elective examinations, if, at this point in time, the student can still have further elective examinations in this subject area recognized for the master's examination; in all other cases, the examination processes end. ³Furthermore,

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students can choose to deepen their qualifications and competencies after they completed a subject area and thus register for the other elective examinations in this subject area if, at this point in time, they can still have further elective examinations recognized for the master's examination. ⁴Aside from the additional requirements, the student may only be permitted to take another elective examination if, under normal circumstances, it can be successfully completed within the maximum period of study. ⁵By passing further elective examinations, students can obtain another 24 ECTS credits in this subject area and have these recognized for the master's examination.

(4) ¹If an elective examination is failed with no option to re-sit, the student must register for another available elective examination in order to obtain the minimum number of required ECTS credits; if the student already completed the subject area, they can choose to register for another elective examination on a voluntary basis. ²If students fail their final attempt at an elective examination, the examination committee does not issue a notification; the students do not lose their eligibility to take exams in accordance with section 32 subsection 5 sentence 3 alternative 1 LHG.

Section 31 – The Responsible Data Science Subject Area

¹In the subject area "Responsible Data Science", students must complete one mandatory elective examination that amounts to at least 3 ECTS credits; the available mandatory elective examinations can be found in the area overview in the annex. ²In all other respects, the regulations of section 29 for the subject area "Data Management" apply provided that students completed this subject area by obtaining 3 ECTS credits and a maximum of another 7 ECTS credits may be obtained by passing elective examinations and be recognized for the master's examination.

Section 32 – The Projects and Seminars Subject Area

(1) ¹In the subject area „Projects and Seminars“, students must pass both mandatory examinations as well as one of the available mandatory elective examination as laid out in the area overview in the annex for the master's examination. ²This subject area is completed once students pass both mandatory examinations and one mandatory elective examination; students may not participate in the alternative mandatory elective examination. ³For the examinations in the modules of this subject area, the regulations according to section 11 subsection 5 number 1 letter c apply in particular for the examination in the module „Scientific Research“ and sections 15 to 17 for all other examinations.

(2) ¹In this subject area, students can choose between courses on different topics (seminars) for the module "Seminar". ²The available seminars for each semester can be found in the module catalog MMDS.

(3) ¹If a student fails a final attempt of an elective examination with no option to re-sit, they can register for the alternative mandatory elective examination; it is not possible to change the chosen mandatory elective examination beforehand. ²Aside from the additional requirements, the student may only be permitted to take the alternative mandatory elective examination if, under normal circumstances, it can be successfully completed within the maximum period of study.

(4) ¹The subject area is failed if the student fails the final attempt of one mandatory examination or both mandatory elective examinations. ²In this case, the examination committee notifies the student, in writing, that the respective mandatory examination or the mandatory elective examination in the subject area "Projects and Seminars" has been failed and cannot be re-taken. ³The student loses their eligibility to take exams in accordance with section 32 subsection 5 sentence 3 alternative 1 LHG.

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Section 33 – The Master's Thesis Subject Area

(1) ¹In the subject area "Master's Thesis", students must pass the mandatory examination in form of the master's thesis that amounts to 30 ECTS credits in order to complete the subject area. ²The regulations stated in section 18 apply to this examination in particular.

(2) ¹If a student fails this mandatory examination with no option to re-sit, the examination committee notifies them, in writing, that the respective mandatory examination has been failed and cannot be re-taken. ²The student loses their eligibility to take exams in accordance with section 32 subsection 5 sentence 2 alternative 1 LHG.

Section 34 – Calculation of the Subject Area Grade, Grading of the Master's Examination (Final Grade)

(1) ¹The area grade is calculated using the grades achieved in the modules belonging to an area, weighted according to the number of ECTS credits allocated to the module; additional modules are not taken into consideration when calculating subject area grades. ²If only one module is passed in the subject area "Fundamentals", the grade achieved in this module is also the grade for this subject area; if no module is passed in this area, then no subject area grade is awarded. ³In the subject area "Master's Thesis", the subject area grade equals the module grade.

(2) The final grade of the master's examination is calculated from the average of the subject area grades weighted according to their respective number of ECTS credits.

(3) ¹For the subject area grades in line with subsection 1 sentence 1 as well as the final grade, only the first decimal place is of importance; all other decimal places are eliminated without rounding up or down. ²In line with sentence 1, the grades are as follows:

- in case of an average grade of 1.5 or better = "very good" ("sehr gut");
- in case of an average grade from 1.6 to 2.5 = "good" ("gut");
- in case of an average grade from 2.6 to 3.5 = "satisfactory" ("befriedigend");
- in case of an average grade from 3.6 to 4.0 = "fair" ("ausreichend").

(4) In case the final grade is 1.2 or better, the student graduates "with honors" ("mit Auszeichnung bestanden").

(5) ¹Students may request a Transcript of Records with a provisional average grade to be drawn up prior to receiving their final grade as soon as they have completed 30 ECTS credits. ²The provisional average grade derives from the average of all completed and graded modules weighted according to the ECTS credits at the time of the request; subsection 3 applies respectively.

Section 35 – Master's Degree Certificate

(1) ¹After successful completion of the master's examination, the student is issued a degree certificate. ²This comprises:

1. The subject areas in section 3 subsection 1 sentence 1 numbers 2 to 5, and, provided that modules have been passed, the area named in section 3 subsection 1 sentence 1 number 1; the subject areas are listed with the corresponding number of ECTS credits and the subject area grade (in words and figures);
2. the topic of the master's thesis and the name of the examiner;
3. the grade awarded for the master's thesis (in words and figures);
4. the final grade (in words and figures);
5. if applicable, the honors ("mit Auszeichnung bestanden") according to section 34 subsection 4.

³The certificate dates back to the day of completion of the last examination. ⁴If it is not possible to determine this date, the last day of classes of the respective semester serves as the date of completion. ⁵The certificate must be signed by the chair or deputy chair of the examination committee.

(2) ¹An English Diploma Supplement in accordance with the European Diploma Supplement model must be attached to each certificate. ²A Transcript of Records forms part of the Diploma Supplement comprising all

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completed modules and the respective examinations including the issued ECTS credits and grades; all completed additional modules and the respective examinations including the grades are listed as well.

(3) ¹The Diploma Supplement also contains an ECTS Grading Table in accordance with the ECTS guidelines. ²The ECTS Grading Table contains a list of the percentage distribution of the final grades obtained by graduates of the "Mannheim Master in Data Science" (M.Sc.) program. ³The ECTS Grading Table is produced annually in June. ⁴The calculation is based on the final grades of all graduates who have completed their program of study in the last three years. ⁵The chair of the examination committee decides for each class whether or not a relative grade is given. ⁶They may decide to take further classes into account for the calculation.

Section 36 – Diploma

¹Along with the master's degree certificate, the student receives a diploma certifying the conferment of the academic degree and comprising the final grade of the degree and/or the honors ("mit Auszeichnung bestanden") according to section 34 subsection 4. ²The diploma includes the same date as the master's degree certificate. ³The diploma is signed by the dean of the school or their deputy and contains the seal of the university.

Part 4 – Violation of the Examination Regulations

Section 37 – Cheating and other Misconduct

(1) ¹If a student manipulates or tries to manipulate their examination by cheating or using unauthorized resources or by influencing the examiner or supervisor in favor of themselves or a third person, the respective examination or further examinations may be graded "failed" or the student may be excluded from the examination depending on the severity of the violation. ²In especially severe cases, the student can be excluded without the option to retake the examination. ³It is also considered cheating according to sentence 1 if coursework or examinations contain quotations or references from the works of others which have not been indicated as such by the student.

(2) ¹If a student tries to have coursework and/or examinations completed abroad recognized on the basis of false information, the coursework or examinations they are to substitute are graded "failed". ²In case of mandatory courses, the coursework or examinations to be substituted must be submitted or taken on the next possible date at the University of Mannheim.

(3) ¹A student who violates the examination regulations severely, in particular, if they disturb the proper course of an examination, may be excluded from the examination by the examiner or the supervisor. ²In such cases, the relevant coursework or examination is graded "failed". ³In severe cases, the examination committee may exclude the student from taking any further examinations.

Section 38 – Voidness of the Master's Examination

(1) ¹In case a student has manipulated an examination by cheating and this fact is revealed after the student has received the master's degree certificate, the examination committee may revise the result or the respective grade retroactively and declare the examination as completely or partially failed. ²If the completion of the master's examination is affected by this, the examination committee may revoke the respective ECTS credits and, if necessary, declare the master's examination as "failed with no option to re-sit".

(2) ¹If the requirements to be admitted to an examination were not met, without the candidate's intent to disguise this fact and if this fact is revealed after the student has received the master's degree certificate, this defect is remedied by having passed the examination. ²If the student attained admission illegitimately on purpose, the examination and consequently the degree completion may be considered "failed" ("nicht bestanden").

(3) The person in question must be granted the chance to comment on the issue prior to the decision.

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(4) ¹Inaccurate master's degree certificates are to be recalled. ²Where applicable, new master's degree certificates are to be issued. ³Along with the inaccurate master's degree certificates, the respective diploma is to be recalled if changes to the final grade have to be made or failure of degree completion was declared. ⁴After a period of time of five years starting from the issuance date of the original master's degree certificate, a decision in accordance with subsection 1 or subsection 2 sentence 2 is no longer possible.

(5) The revocation of the degree complies with the legal rules and regulations.

IV. Final Provisions

Section 40 – Commencement, Scope, Transitional Provisions

(1) ¹These Examination Regulations become effective on 1 February 2020. ²The Examination Regulations only apply to students who start their master's program "Mannheim Master in Data Science" (M.Sc.) at the University of Mannheim in the first or advanced semester in the spring semester 2020 or later.

(2) ¹The examination regulations of the University of Mannheim for the master's program "Mannheim Master in Data Science" of 22 July 2016 (Bulletin of the President's Office (Amtliche Bekanntmachung des Rektorats) No. 22/2016, pp. 12 et seqq.) in their current version ceases to be effective with the commencement of these examination regulations. ²Students who have already started their master's program "Mannheim Master in Data Science" (M.Sc.) at the School of Business Informatics and Mathematics at the University of Mannheim under the examination regulations that cease to be effective in accordance with sentence 1 have the option to finish their program according to the former examination regulations up until and including the fall semester 2023/2024. ³The fall semester 2022/2023 will be the last semester to offer examinations according to the former examination regulations that ceased to be effective in accordance with sentence 1. ⁴Students who do not manage to complete their program until then are to be disenrolled; further disenrollment reasons, especially section 62 subsection 3 sentence 1 number 2 LHG, remain unaffected.

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Annex: Subject Area Components

1. Fundamentals (0 to 14 ECTS credits)

¹In the subject area "Fundamentals" students learn the required basic skills relating to programming, data bases, data collection and statistics, if they have not already acquired these skills in the bachelor's program. ²The available elective modules from the department of Informatics including the examinations and the respective ECTS credits that can be obtained upon passing of the examinations can be found in the module catalog MMDS; for imported elective modules this information can be found in the external module catalog that is mentioned in the module catalog MMDS.

2. Data Management (18 to 36 ECTS credits),

¹In the area of Data Management, students develop theoretical and practical competences for collecting, integrating and managing data, in particular with regard to the scaling of processes for large volumes of data.

²This includes questions of data storage, data quality and data-based information retrieval as well as technical basics of efficient storage and processing algorithms.

	Module		Examination	ECTS credits
	Abbreviation	Name		
WP	CS 560	Large Scale Data Management	Exam (90 min.)	6
WP	IE 663	Information Retrieval and Web Search	Exam (90 min.)	3
WP	IE 691	Information Retrieval Project	Project work (ca. 45H), project report (10-20 pages), presentation (20-30 minutes)	3
WP	IE 650	Semantic Web Technologies	Exam (60 min.)	6
WP	CS 530	Database Systems II	Exam (90 min.)	6
WP	IE 630	Query Optimization	Oral exam (30 min.)	6
WP	CS 500	Advanced Software Engineering	Exam (90 min.)	6
WP	CS 600	Model-Driven Development	Exam (90 min.)	6
WP	CS 550	Algorithmics	Exam (90 min.)	6
WP	IE 670	Web Data Integration	Exam (60 min.)	3
WP	IE 683	Web Data Integration	Project work (approx. 36 h), project report (10-20 pages), presentation (20-30 minutes)	3

3. Data Analytics Methods (30 to 54 ECTS credits),

¹ In the subject area "Data Analytics Methods", students develop theoretical and practical competences for using data for answering complex questions from various fields. ²They gain theoretical knowledge of processes used for recognizing patterns in data and for deriving models from multimodal data and learn to practically implement these processes. ³The available elective modules from the department of Informatics including the examinations and the respective ECTS credits that can be obtained upon passing of the examinations can be

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found in the module catalog MMDS; for imported elective modules this information can be found in the external module catalog that is mentioned in the module catalog MMDS.

4. Responsible Data Science (3 to 10 ECTS credits),

¹ In the area "Responsible Data Science", students gain knowledge of the social and legal consequences of using data science methods. ² Students are made aware of the areas of use which might be problematic for society as well as for problems arising due to legal and social framework conditions in the field of data protection and data security.

	Module Abbreviation Name		Examination	ECTS credits
WP	CS 652	Data Security	Oral exam (30 min.) or exam (90 min.)	6
WP		Legal and Ethical Aspects of Privacy	Exam (90 min.)	3
WP	CS 718	AI and Data Science in Fiction and Society	Paper (15-20 pages), presentation (20-30 minutes) and peer review (up to 10 pages)	4

5. Projects and Seminars (14 to -18 ECTS credits),

¹In the subject area "Projects and Seminars", students acquire the competency to theoretically and practically work on problems in the field of Data Science. ²The focus is on methodological competences such as learning independently about the latest developments in research and technology, working independently on scientific and practical problems, developing solutions independently, as well as planning and managing projects and presenting and communicating project results.

	Module Abbreviation Name		Examination	ECTS credits
WP	TP 500	Team Project	Written work and presentation	12
WP		Individual Project	Project report and presentation (15-30 min.)	8
P	SQ 500	Scientific Research	Exam (150 min.)	2
P	CS 7XX	Seminar	Paper (5-25 pages), 1-2 presentations (15-60 minute in total) and peer reviews (not in all seminars; up to 10 pages)	4

6. Master's Thesis (30 ECTS credits)

	Module Name	Examination	ECTS credits
P	Master's Thesis	Master's Thesis	30

List of Abbreviations

- P mandatory examination (Pflichtprüfung)
- WP mandatory elective examination (Wahlpflichtprüfung)

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W elective examination (Wahlprüfung)