

Study and examination regulations of Heidelberg University for the Master's degree in Data and Computer Science

dated July 22, 2010
in the version of September 29, 2021

Based on Section 32 of the Law on Universities in Baden-Württemberg (State Higher Education Act - LHG), last amended by Article 1 of the Fourth Law amending higher education regulations (Fourth Higher Education Law Amendment Act - 4th HRÄG) of December 17, 2020 (GBl . p. 1204, 1230), the Senate of Heidelberg University passed the following statutes on September 28, 2021.

The Rector gave his approval on September 29, 2021.

Section I: General Provisions

§ 1 Purpose of the program of study and the examination

- (1) The consecutive, research-oriented Master's degree in Data and Computer Science imparts in-depth specialist knowledge and scientific methods in computer science and, if the students choose, also in related fields.
- (2) The Master's examination is intended to determine whether the students have an overview of the context of their subject, have the ability to apply more in-depth scientific methods and knowledge, and work independently according to scientific principles.
- (3) Admission to the course is regulated in a separate admissions regulation.

§ 2 Master's degree

After passing the Master's examination, Heidelberg University, represented by the Faculty of Mathematics and Computer Science, awards the academic degree "Master of Science" (abbreviated M.Sc.).

§ 3 Standard period of study, course structure, course requirements

- (1) The standard period of study for the Master's course is four semesters, including the time for the Master's examination. The total scope of compulsory, compulsory elective and elective areas required for a successful completion of the master's degree is 120 credit points (LP) according to the European Credit Transfer System.

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- (2) The Master's program in Data and Computer Science is divided into modules. A total of 62 credits in the field of computer science, 18 credits in the application area and 6 credits for general skills (ÜK) are to be earned. The Master's thesis accounts for 30 CP and 4 CP for the Master's colloquium. The compulsory, compulsory elective and elective modules to be completed are listed in Appendix 1. The course of study should be based on Appendix 2.
- (3) The Master's degree in Data and Computer Science includes an application area. Appendix 3 lists the possible application areas. On request, the examination board can also approve another an application area.
- (4) The language of instruction and examination is English.
- (5) If the master's examination is not completed within three semesters after the end of the standard period of study, the right to take the examination expires, unless the student is not responsible for exceeding the deadline in accordance with § 8 paragraph 3 and paragraph 4.
- (6) Students can apply for part-time study. The details are given by the regulations of part-time studies at the Heidelberg University (Part-Time StudiesO, "TeilzeitstudienO") in the currently valid version. Admission to part-time studies extends the standard period of study in accordance with the provisions made there. With regard to the processing time for written examinations, § 4 paragraph 3 Part-Time StudiesO must be observed.

§ 4 Modules, credit points, grades

- (1) A module is a thematically and temporally self-contained teaching and learning unit that can be made up of various courses. It not only consists of the courses to be attended, but also includes the academic achievements to be obtained and the associated examinations that are necessary for the successful completion of a module. The modules are described in the module handbook.
- (2) A distinction is made between compulsory modules, compulsory elective modules and elective modules:
 1. Compulsory modules must be completed by all students. It is possible to choose between different courses within a compulsory module. The final failure of a compulsory module leads to the loss of the examination entitlement.
 2. Elective modules are modules within a mandatory elective area. Within the respective compulsory elective area, the students have the choice between different, equivalent compulsory elective modules. Within an elective module, it is also possible to choose between different courses. Ultimately

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failing the selected compulsory elective module leads to the loss of the right to take the exam, unless the module handbook provides for a compensation option.

3. Elective modules are modules that students can choose freely from the range of elective modules. Within an elective module, it is also possible to choose between different courses. The final failure of an elective module only leads to the loss of the right to take an examination if all compensation options that are required to achieve the scope required for the course of study have been exhausted within the specified elective modules or through other elective modules. In this case, the course can no longer be successfully completed.
- (3) In order to pass a module, all required partial performances within the module must have been rated at least "sufficient" (4.0), ungraded performances with "passed" (= partial module grades).
 - (4) The modules on general competencies can be graded or ungraded. They are not included in the calculation of the overall grade of the master's examination.
 - (5) Credit points are awarded for successfully completed modules in accordance with these statutes and the module handbook. One credit point corresponds to a workload of 30 hours for students.
 - (6) Participation in individual courses, examinations and modules may require the successful completion of other courses, coursework, examinations and modules. Details are regulated in the module handbook.
 - (7) At the end of each semester, a list of grades (transcript of records) can be issued upon application by the student. All passed module examinations are listed there together with the respective credit points and grades.

§ 5 Examination Board

- (1) For the organization of the examinations and for the tasks assigned to it by these and examination regulations, an examination committee is formed. It consists of three university teachers, one representative of the academic staff and one student with an advisory vote.
- (2) The chairperson of the examination board, their deputy, the members and their deputy are appointed by the faculty council. The chairperson and their deputy must be university teachers. The student member and his or her deputy are appointed by the faculty council at the suggestion of the student body.

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- (3) The term of office of the members is three years, that of the student member is one year. It always begins on October 1st. Re-election is possible. If the student member and his or her deputy leave prematurely, for example, due to a change of university location, or if both cannot perform their duties for more than three months, for example, due to a study visit at another university in Germany or abroad, a new student member and a new deputy are immediately to be appointed.
- (4) The examination board ensures that the provisions of the study and examination regulations are observed. It reports regularly to the faculty on the development of examination and study times and the grading as well as the distribution of grades. The report must be disclosed in an appropriate manner.
- (5) The chairperson manages the day-to-day business of the examination board, prepares and chairs the meetings and decides in the event of a tie. The Examination Board can delegate further tasks to the chairperson by means of a revocable resolution. Tasks that only serve to prepare decisions of the examination board can be revocably transferred by the examination board to the examination office or a person commissioned by the faculty. The examination board is to be regularly informed about the completion of assigned tasks.
- (6) The members of the examination board have the right to be present at the examinations.
- (7) The members of the examination board and their deputies are subject to the duty of official secrecy. If they are not in public service, they are to be sworn to secrecy by the chairperson.

§ 6 Examiners and assessors

- (1) The chairperson of the examination board, in agreement with the examination board, appoints the examiners and assessors involved in the examinations. The examiners must teach in the Master's program in Data and Computer Science.
- (2) As a rule, only university teachers, university lecturers and private lecturers as well as academic staff are authorized to conduct university examinations that are not conducted during the course of study in connection with individual courses. These persons must have many years of successful teaching, and the right to examine has been transferred to them by the Rector.
- (3) In the case of course-related examinations, the teacher responsible for the relevant course is usually the examiner.

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- (4) Assessors must have passed the master's examination or a final examination that is at least equivalent.
- (5) § 5 paragraph 7 (official secrecy) applies accordingly to the examiners and observers.

§ 7 Recognition of study and examination achievements as well as degrees

- (1) Study and examination achievements as well as degrees obtained in courses at other state or state-recognized universities and vocational academies in the Federal Republic of Germany or in courses at foreign state or state-recognized universities are recognized provided that there is no significant difference to the achievements with regard to the skills acquired or degrees that are being replaced.
- (2) The preliminary or intermediate examination taken at another German university of the same type in the same or related course will be recognized. Participation in recognized distance learning units is counted towards the study time in the same way as the corresponding face-to-face studies. The final thesis is generally excluded from recognition.
- (3) The application must be submitted in writing to the examination board. It is the applicant's responsibility to provide the required information about the achievement to be recognized. The burden of explanation and proof of the existence of a significant difference in university performance lies with Heidelberg University; The applicant's obligations to cooperate, in particular according to sentence 1 and sentence 2, remain unaffected. The burden of explanation and proof of the existence of equivalence in the case of non-university achievements lies with the applicant.
- (4) Insofar as agreements and agreements between the Federal Republic of Germany and other countries regarding equivalence in higher education (equivalence agreements) favor students from foreign countries in deviation from Section 35 LHG and the provisions of this Section § 7, the provisions of the equivalence agreements take precedence.
- (5) Coursework and examinations should be assessed on the basis of a credit point system that allows credits for the same or related courses at the same or other universities; The same applies to vocational academies, insofar as equivalence is given.
- (6) Knowledge and skills acquired outside the university system are to be counted towards a university degree if
 1. the requirements for university admission are met at the time of crediting, and

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2. the knowledge and skills to be credited to the university degree are equivalent in content and level to the coursework and examinations they are intended to replace, and
 3. the criteria for crediting have been checked as part of an accreditation. Knowledge and skills acquired outside the higher education system may replace a maximum of 50 percent of the higher education course. Paragraph 3 applies accordingly to the process of crediting. If individual achievements required for the recognition of certain knowledge and skills are missing, the examination board can carry out a placement test.
- (7) In the case of contact studies, credit points can be awarded for study and examination achievements. Paragraphs 2 and 5 as well as paragraph 6 number 1 apply accordingly to the transfer of credit points from contact studies to a university degree. Paragraph 6 applies accordingly to the recognition of knowledge and skills acquired outside the university system in contact studies.

§ 8 Failure, withdrawal, deception, violation of regulations

- (1) An examination is rated as "inadequate" (5.0) or "failed" if the person to be examined does not appear at an examination date, withdraws from the examination after it has started, or does not complete an examination within the specified period or processing time, unless the person to be examined is not responsible for the failure or the withdrawal.
- (2) It is only possible to withdraw from the exam after registration without giving reasons up to seven days before the exam, after that only by stating reasons in accordance with paragraph 3. Deviating regulations can be made in the module handbook or by the person responsible for teaching the event at the latest at the beginning of the event.
- (3) The reasons given for the absence or the withdrawal must be reported to the person responsible for teaching and the examination board immediately in text form and must be substantiated. In the case of illness of the person to be examined or of a child who is mainly to be cared for by him or her alone, a suitable medical certificate must be submitted. The Examination Board may request that the original evidence be submitted. If the reasons are accepted, the examination will take place on the next regular examination date. The person responsible for teaching decides whether partial examinations that have already been passed can be passed or whether they have to be repeated.
- (4) When deciding whether the person to be examined is responsible for exceeding a deadline for deregistering or taking an examination, the examination board must observe the protective provisions under the Maternity Protection Act and the

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statutory provisions on parental leave and their use. The same applies to students with relatives in need of care within the meaning of § 7 paragraph 3 of the Caregiver Leave Act and to disabled and chronically ill students.

- (5) If the person to be examined tries to influence the result of the examination by cheating or using non-approved aids, the examination in question is rated as "inadequate" (5.0) or "failed". A person to be examined who disrupts the proper course of the examination can be excluded from the continuation of the examination by the examiner or supervisor. In this case, the examination in question is assessed as "insufficient" (5.0) or "failed". In serious cases, the examination board can exclude the person to be examined from further examinations.
- (6) The person to be examined can request that decisions according to paragraph 5 be reviewed by the examination board. Incriminating decisions must be communicated to the person to be examined immediately in writing, justified and provided with information on legal remedies; this also applies to a decision according to paragraph 5 sentence 4.
- (7) If the person to be examined has cheated in an examination and this fact only becomes known after the performance record has been issued, the examination board can subsequently correct the grades for those examination performances in which cheating was performed within the meaning of paragraph 5 sentence 1 or the examination declare a failure in whole or in part; Paragraph 5 sentence 4 applies accordingly. The person to be examined is to be given the opportunity to comment before a decision is made. The incorrect performance record will be confiscated and a new one created if necessary.

§ 9 Examinations

- (1) To check the acquisition of the necessary skills, abilities and knowledge, examinations are held within the framework of the courses, which belong to the respective course. Examination tasks are set by the respective examiner; the details are regulated by the module handbook.
- (2) An examination is passed if it has been given a grade of at least "sufficient" and a grade of 4.0. If the respective performances of the persons to be examined can be clearly distinguished from one another in group examinations, each person receives a separate grade or evaluation as "passed " or "failed". If the performances cannot be distinguished from each other or if a joint performance is performed, all members of a group receive the same grade or evaluation.
- (3) Examinations can consist of several parts (partial examinations) if this is necessary to check the achievement of different learning objectives and there is a corresponding

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regulation in the module handbook. Examinations can take place on specific dates or over the entire duration of an event. Examinations belonging to different courses can be held together in whole or in part. Unless otherwise stipulated in the module handbook, an examination consisting of several parts (partial examinations) is passed if all partial examinations have been passed.

- (4) Exams are taken, also electronically or computer-aided, in the form of
- a) oral exams,
 - b) written exams,
 - c) practical exams as well
 - d) mixed forms of the examination forms mentioned under a) to c).

Multiple choice tasks are allowed. The form, scope and passing requirements of the respective examination are regulated by the module handbook or by the person responsible for teaching by notification, if necessary, electronically, at the latest at the beginning of the event to which the examination belongs.

- (5) If the examinee credibly submits a medical certificate showing that he/she is unable to complete examinations in whole or in part in the intended form due to long-lasting or permanent health impairments, the examination board can allow equivalent examinations to be taken in a different form (disadvantage compensation). The same applies to study achievements.
- (6) One usually registers for an exam two weeks before the exam date. Deviating regulations can be made in the module handbook or by notification of the person responsible for teaching, possibly electronically, at the latest at the beginning of the event.
- (7) One can be only admitted to an examination if one
- a) is enrolled in the Master's program in Data and Computer Science at the Heidelberg University and
 - b) has not lost the right to take examinations in the master's program in Data and Computer Science or a related program with essentially the same content.

The respective requirements and the admission procedure are regulated in the module handbook. Details are to be announced by the teacher responsible for the course at the latest at the beginning of the course, if necessary, electronically.

§ 10 Oral examinations

- (1) Through oral examinations, the examinee should prove that she/he has mastered the subject matter of the examination area. Group exams are permitted.
- (2) Oral examinations are taken in front of an examiner in the presence of an observer according to § 6 paragraph 4. If several examinations are held at the same time, one

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examiner can take on the role of observer in a different examination.

- (3) The duration of oral individual examinations can be between 15 and 60 minutes, the duration of oral group examinations between 30 and 90 minutes, whereby 15 to 30 minutes should allocate to each examinee. The module handbook regulates further details.
- (4) The essential items and the result of the oral examination are to be recorded in a protocol. The result is to be announced to the examinee after the oral examination. This does not apply if the examination interview is a partial examination; in this case, the result will only be announced after the last partial examination has been taken, if necessary, electronically.
- (5) Students who want to take the same subject examination at a later date can be admitted as listeners depending on the available places. The admission does not extend to the consultation and the announcement of the examination results. At the request of the examinee or for important reasons, the public is to be excluded.

§ 11 Written exams

- (1) Through written examinations, the examinee should prove that she/he can identify and solve a problem in a limited time and with limited resources using the usual methods of the subject.
- (2) The duration of written examinations, which take place under supervision and only with approved aids and, if necessary, electronically or computer-aided (exams), is between 45 and 120 minutes. The module handbook regulates further details.
- (3) Multiple-choice questions (multiple-choice tasks) are permitted. The proportion of multiple-choice questions in a written examination should not exceed one third of the total performance to be achieved in the examination. If an exam contains a multiple-choice question part, both parts are graded separately and the final grade is calculated based on the partial grades, which may be weighted. The module manual regulates further details, in particular with regard to weighting, or will be announced by the person responsible for teaching at the latest at the beginning of the course, electronically if necessary.
- (4) Examinations in which the performance is evaluated schematically solely on the basis of the number of points achieved, e.g., multiple-choice tasks, are passed if 60% of the maximum achievable number of points are achieved, unless the evaluation is based on an expectation horizon, which is defined by at least three persons who are authorized to examine according to § 6 paragraph 1 (standard setting).

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- (5) In multiple-choice questions, the examinee has to select one or more answers from a limited number of possibilities, in particular in the form of
- Single-choice questions: one answer must be selected from several possible answers;
 - multiple-choice questions: a predetermined number of answers to be selected from a list;
 - multiple right/wrong tasks: a series of dichotomous subtasks to be answered, e.g., with "yes/no" or "right/wrong".

Multiple-choice tasks are usually set by the examiner according to § 6 paragraph 3. The examination tasks must be tailored to the knowledge imparted in the course and be suitable for delivering reliable examination results. Before determining the examination result, the person named in sentence 2 must check whether the examination tasks meet the requirements specified in sentence 3.

- (6) In exams according to Paragraph 5 Clause 1, items that contain errors are not used to determine the pass mark. If it was possible to answer such questions correctly or partially correctly, additional points are to be awarded to the examinee for the correct or partially correct answer. A reduction in the number of examination tasks must not be to the detriment of the examinee. If the arithmetic mean of the points achieved by all persons to be examined, reduced by 20%, falls below the 60% limit according to paragraph 3 in examinations according to paragraph 5 sentence 1, the pass mark is reduced to this value (adjustment clause).
- (7) If a written examination is in the form of a term paper or another written elaboration that is not carried out under supervision, the examinee must assure that he/she wrote the work independently and did not use any other aids than those specified. At the request of the examiner, the work must also be submitted in a common format in an electronic version, together with an assurance that the content and wording of the electronic version that has been sent fully corresponds to the printed version and that the candidate agrees that this electronic version is checked for plagiarism within the university using plagiarism software. If an untrue assurance is submitted or if evidence of plagiarism is provided, the work will be rated "inadequate (5.0)"; § 8 paragraph 5 and paragraph 6 apply accordingly. Before a decision is made, the examinee is to be given the opportunity to comment.
- (8) The assessment procedure for written examinations accompanying the course should not exceed two weeks.

§ 12 Practical examinations

- (1) Through practical tests, the person to be tested should prove that she/he is able to apply theoretical knowledge and learned skills and abilities, including knowledge of processes and activities or work steps, to a specific problem within a specified

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processing time. The processing time usually ranges from several hours to several weeks. The module handbook regulates further details.

- (2) Group examinations are permitted.

§ 13 Assessment of examinations

- (1) The assessment and grading of performance is carried out by the respective examiner. The following notes are to be used:

Grade	Value	Valuation
1 = very good	up to 1,5	an excellent performance
2 = good	1,6 to 2,5	a performance well above average requirements
3 = satisfactory	2,6 to 3,5	a performance that meets average requirements
4 = sufficient	3,6 to 4,5	a performance that, despite its shortcomings, still meets the requirements
5 = insufficient	from 4,6	a performance that does not meet the requirements due to significant deficiencies

If a grade is awarded for an individual performance, only a grade within the meaning of sentence 1, table column 1 is considered; However, this can be raised or lowered by 0.3 to the intermediate values x.7 or x.3, whereby the grades 0.7, 4.3, 4.7 and 5.3 are excluded. If a grade for an individual performance is included in an overall evaluation, the whole number (x.0) or, if applicable, the intermediate value (x.7 or x.3) counts as the grade.

If assessments are summarized to form an overall assessment, the grade results from the arithmetic mean of the individual grades, unless a different weighting is specified in the module handbook or by notification of the person responsible for teaching, if necessary electronically, at the latest at the beginning of the course; Paragraph 3 applies accordingly.

- (2) The final grade of a module results from the arithmetic mean of the grade values of the partial module grades weighted according to the respective credit points. If a final module examination is to be taken in a module, then, contrary to sentence 1, the grade of the final module examination forms the final grade for this module. Regulations on weighting that deviate from sentence 1 and sentence 2 can be made in the module handbook or by notifying the person responsible for teaching,

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electronically, if necessary, at the latest at the beginning of the course.

A module final grade, a subject grade and the overall grade of the master's examination are an average
up to 1.5 very good,
from 1.6 to 2.5 good,
from 2.6 to 3.5 satisfactory,
from 3.6 to 4.0 sufficient.

§ 14 Repetition of examinations, deadlines

- (1) It is not possible to repeat a passed exam.
- (2) Examinations that have not been passed or are deemed to have been failed can be repeated once. A repeat examination can only be taken at Heidelberg University or a cooperating university with which a corresponding cooperation agreement exists.
- (3) Failed examinations of compulsory and elective modules must be repeated within two semesters. § 18 paragraph 5 applies to repeating the master's examination. If the candidate misses the deadline, the examinee loses the right to take the examination, unless he is not responsible for exceeding the deadline in accordance with § 8 paragraph 3 and paragraph 4.
- (4) If a compulsory module that is not the Master's thesis or an elective module is not passed in the first repetition, the examination board can admit the candidate to a second repetition upon written, justified application. A second repetition is only permitted in exceptional cases and only with a maximum of three modules.
- (5) Failure to pass a compulsory module results in the loss of the examination entitlement. In the case of compulsory elective modules, failure can be compensated for by successfully completing another compulsory elective module or another achievement within the module in question, insofar as this is provided for in the module handbook. § 4 paragraph 2 remains unaffected.

Section II: Master's Examination

§ 15 Admission requirements and admission procedure for the master's examination, application for the award of the master's degree

- (1) Only those who meet the requirements according to paragraph 2 and § 9 paragraph 7 sentence 1 can be admitted to the master's examination. Application for admission

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must be made in writing to the examination board.

- (2) The application for admission to the master's examination must be attached
 1. an evidence of academic achievements amounting to at least 45 credits, excluding the 18 credits of the application area, and
 2. a declaration of the existence of the requirements according to § 9 paragraph 7 sentence 1.
- (3) The chairperson of the examination board decides on the application. A refusal must be communicated in writing, justified and provided with instructions on legal remedies.
- (4) If the examinee cannot provide the necessary evidence in the prescribed manner, the examination board can permit the evidence to be provided in a different way.
- (5) The application is rejected if
 1. the documents are incomplete or
 2. the requirements specified in paragraph 1 are not met or
 3. the examinee has otherwise lost the right to take examinations in the Data and Computer Science course or in a related course with essentially the same content, or
 4. the examinee is in an examination procedure in a degree program according to Section 3.

§ 16 Scope and form of the master's examination

The Master's examination in the Data and Computer Science course consists of

1. the master's thesis and
2. the master's colloquium.

§ 17 Master's thesis

- (1) The Master's thesis should show that the examinee is able to independently work on a computer science problem or an application area within a specified period of time using computer science methods.
- (2) The Master's thesis can be issued and supervised by any authorized examiner according to § 6 paragraph 2.
- (3) The examinee must start the Master's thesis no later than in the semester following the announcement of the evaluation of the last academic achievement in accordance with Appendix 1, with the exception of the master's examination. If the examinee misses this deadline, the Master's thesis is graded as "insufficient" (5.0), unless the examinee is not responsible for exceeding the deadline in accordance with § 8

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paragraph 3 and paragraph 4.

- (4) The subject of the Master's thesis is determined by the supervisor in consultation with the examinee. Upon request, the chairperson of the examination board will ensure that the examinee receives a topic for the master's thesis in good time. The examinee is to be given the opportunity to make suggestions for the topic; this does not justify a legal claim.
- (5) The topic is assigned by the chairperson of the examination board. The date of issue must be recorded. The Master's thesis is registered when the topic is issued and is considered to have been started.
- (6) The scope of the Master's thesis corresponds to 30 CP. The time from the issue of the topic to the submission of the Master's thesis is six months. In exceptional cases, the deadline can be extended by the examination board in consultation with the supervisor by up to three months, or by up to six months during part-time studies. If the processing deadline is not met, the master's thesis is assessed as "insufficient" (5.0), unless the examinee is not responsible for exceeding the deadline in accordance with § 8 paragraph 3 and paragraph 4.
- (7) Topic, task and scope of the Master's thesis are to be limited in such a way that the deadline for processing can be met.
- (8) The Master's thesis can be written in English or German after prior consultation with the supervisor. It should contain an English summary.

§ 18 Submission and evaluation of the Master's thesis

- (1) The Master's thesis must be submitted to the examination board in three copies and one electronic version by the deadline; The date of submission must be documented. The file format for the electronic version is determined by the examination board and announced when registering the work, electronically if necessary.
- (2) When submitting the Master's thesis, the examinee must confirm in writing that he or she has written the work themselves and has not used any sources or aids other than those specified and has marked what has been taken over, either verbatim or in terms of content, from third-party works as foreign. Furthermore, it must be assured that the electronic version transmitted corresponds in content and wording to the printed version and that the examinee agrees that this electronic version is checked for plagiarism internally by the university using plagiarism software. If an untrue assurance is submitted or proof of plagiarism is provided, the work will be rated "not sufficient (5.0)". Section 8 paragraph 5 and paragraph 6 apply accordingly. Before a

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decision is made, the examinee is to be given the opportunity to comment.

- (3) The Master's thesis is evaluated by two examiners, one of whom must be a professor. The first examiner should be the supervisor of the thesis. The second examiner can be determined by the examination board; the examinee has the right to make a proposal, but this does not justify a legal claim. The evaluation process should not exceed six weeks. If the supervisor cannot meet this deadline, he or she must inform the examination board immediately. The notification should include a reason for the delay and the date when the evaluation process will be completed.
- (4) The evaluation is carried out according to § 13 paragraph 1 sentence 1 to sentence 3. The grade results from the arithmetic mean of both evaluations. In the event of deviations of more than one grade, the examination board will determine the grade for the Master's thesis after hearing both examiners. In these cases, she/he can arrange for a third assessment by another examiner and include it in her/his assessment.
- (5) If the Master's thesis is graded "insufficient" (5.0), it can be repeated with a new topic; a repetition with the previous topic is excluded. The repetition must be registered within six months after notification of the grade of the first work. § 17 paragraph 6 applies to the processing time.

§ 19 Master's Colloquium

- (1) In the compulsory master's colloquium module, the person to be examined presents the content of the master's thesis orally and defends the work in a discussion with both examiners. The colloquium should show that the person to be examined has sufficient knowledge of the basics of the topic of the master's thesis and the related areas. As a rule, it must be completed no later than four weeks after submission of the Master's thesis. In exceptional cases, in particular if this is necessary due to an intended change of university location or taking up employment, the examination board of the person to be examined can, upon request, allow the colloquium to be held before the master's thesis is submitted, but no longer than two weeks before submission.
- (2) The colloquium is held in the presence of both examiners according to § 18 paragraph 3. The assessment and grading according to § 13 Paragraph 1 Clause 1 to Clause 3 are carried out by the examiners alone. The grade results from the arithmetic mean of both ratings. The result is the grade of the master's colloquium module. Minutes must be taken of the main points of the presentation and the discussion.

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- (3) The duration of the presentation of the Master's thesis is between 30 and 60 minutes, the length of the discussion between 15 and 45 minutes; The person to be examined must be informed of the details in text form, if necessary, electronically, no later than two weeks before the examination. Overall, the duration of the colloquium should not exceed 90 minutes.
- (4) The master's colloquium is announced to all students and teachers of the computer science courses. Depending on the number of places available, all members and students of the faculty can participate in this as an audience, as can other people at the request of the person to be examined. Participation does not extend to the consultation and the announcement of the examination results. At the request of the person to be examined or for important reasons, the public is to be excluded.

§ 20 Passing the examination, overall grade, application for the award of the Master's degree

- (1) The Master's examination is passed when all modules required for the completion of the course have been successfully completed and have been given a grade of at least "sufficient" and a grade of 4.0.
- (2) § 13 applies to the evaluation of the individual graded examinations and the overall grade.
- (3) The overall grade of the master's examination is formed as follows
 - 65% from the arithmetic mean of the grade values of the module final grades of the course-related modules according to Appendix 1, weighted according to the respective credit points
 - 35% from the arithmetic mean of the grades of the Master's thesis and the Master's colloquium weighted according to the respective credit points.
- (4) § 13 paragraph 3 sentence 2 applies to the overall grade of the master's examination. If the overall grade average is 1.0, the grade "with distinction" is awarded.
- (5) Students who have successfully passed the master's examination receive a relative grade (ECTS grade) in accordance with the ECTS User's Guide in its currently valid version in addition to the final grade according to the German system.
- (6) The award of the master's degree must be applied for in writing to the chairperson of the examination board. Evidence must be provided of academic achievements amounting to 120 CP in accordance with the catalog of compulsory, compulsory

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elective and elective modules in accordance with Appendix 1, in particular evidence of a successfully completed master's thesis.

§ 21 Master's degree certificate

- (1) A certificate in German and English should usually be issued within two weeks after the assessment of the last examination performance. The certificate contains the names of the individual modules with the grades achieved in them, the assigned credit points, topic and grade of the Master's thesis and the overall grade of the master's examination.
- (2) A "Diploma Supplement" in German and English is attached to the final certificate, which contains additional information about course content and the course of studies and adheres to the framework set out in the "European Diploma Supplement" in terms of content.

§ 22 Master's diploma

- (1) With the degree certificate, the candidate receives the master's diploma in German and English with the date of the certificate. It certifies the award of the academic degree "Master of Science".
- (2) The certificate is signed by the dean of studies and by the chairperson of the examination board and bears the seal of the faculty.
- (3) If the examinee has not passed the Master's examination, a certificate signed by the chairperson of the examination board will be issued upon request and upon presentation of the relevant evidence, which contains the examination performances and their grades as well as the missing examination performances. The certificate contains the note that the master's examination was not passed. The same applies to the definitively failed Master's examination.

Section III: Final Provisions

§ 23 Invalidity of examinations

- (1) If the examinee has cheated in an examination and this fact only becomes known after the certificate has been issued, the examination board can subsequently correct the grades for those examinations in which cheating was performed and declare the examination fully or partially failed.
- (2) If the requirements for admission to an examination were not met without the examinee wanting to deceive about this and if this fact only becomes known after

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the certificate has been issued, this deficiency is remedied by passing the examination. If the admission was wrongly obtained intentionally, the examination board will decide.

- (3) Before a decision is made according to paragraph 1 or paragraph 2 sentence 2, the examinee is to be given the opportunity to express his or her opinion.
- (4) The incorrect examination certificate is to be confiscated and a new one issued if necessary. If the examination was declared "failed" due to cheating, the associated Master's certificate must also be confiscated with the incorrect examination certificate. A decision according to paragraph 1 and paragraph 2 sentence 2 is excluded after a period of five years from the date of the examination certificate.

§ 24 Procedural complaints, inspection of the examination files

- (1) Deficiencies in the examination procedure, such as an impairment due to internal (e.g., own illness) or external influences (e.g., noise), must be reported immediately, usually during the examination to the examiner or the person in charge.
- (2) Within one year of completing an examination, the examinee may request access to his or her written examination papers, the related reports of the examiners and the examination records. The chairperson of the examination board should determine the place and time of the inspection.

§ 25 Communication

- (1) Electronic communication with students who have been assigned a student email address by the University Computer Center (URZ) is exclusively via this address. The provisions of Heidelberg University's email usage regulations in their current version remain unaffected.
- (2) If it is not possible to deliver or transmit notifications and other written notifications to the student because she/he, pursuant to Section 8 Number 1 of the University Data Protection Ordinance, specifically those relating to a change of name and/or address, failed to do check these or did not do so immediately, an appeal to deficiencies in the transmission or a lack of access is excluded.

§ 26 Counseling for students

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- (1) The range of subject-related advisory services in the form of general information events and individual advice is open to students throughout their studies. Questions about individual courses can be addressed to the respective lecturer during the consultation hours offered for this purpose. It is strongly recommended that students take advantage of an individual course advisory service in all situations that can lead to significant difficulties with their studies. These are in particular difficulties in preparing for exams or with individual courses, non-compliance with the study plan, failing exams, personal stress and changing the course of study or the university.
- (2) If there is only one attempt left for an examination, a consultation should be held with the person responsible for teaching or examining. This should be done in good time so that any recommendations can already be implemented with regard to the next possible examination date.
- (3) In addition, there is the general counseling service of the university, in particular that of the central student counseling and that of the representative for chronically ill and disabled students.

§ 27 Effective Date, Transitional Provisions

These study and examination regulations come into force on the first day of the month following their publication in the rector's newsletter.

For students who started their studies before they came into force, the previous regulations apply for nine semesters after they come into force. The application must be submitted in text form to the Examination Office within six months of the entry into force.

Heidelberg, September 29, 2021

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Appendix 1: Structure and modules of the program of study

A. Compulsory modules

Master seminar	4 LP
Master internship	8 LP
Application area	18LP
Master's thesis	30 CP
Master colloquium	4 LP

B. Compulsory elective modules

A total of 50 CP must be completed in the compulsory elective area of computer science. Three of the following areas must be covered with at least 6 CP each:

- Visual Computing
- Software Systems and Engineering
- Scientific Computing
- Algorithmic Data Analysis and Machine Learning
- Algorithmics and Theoretical Computer Science
- Computer engineering

The modules available for selection are listed in the module handbook.

In addition to the compulsory elective modules, up to two master seminars in the compulsory area can be chosen as elective modules, both to broaden knowledge and for further specialization, especially with regard to the content of the Master's thesis. Recognition of these modules as modules completed in the compulsory area and recognition of compulsory modules completed in the compulsory elective area for the compulsory area is then excluded.

When planning your studies, you can also choose specializations with correspondingly specified compulsory elective modules. The specializations are described in the module handbook.

If the basic knowledge required to achieve certain learning goals is missing, especially if the bachelor's degree that was a prerequisite for admission to the master's degree in Data and Computer Science was not completed at the Faculty of Mathematics and Computer Science at the Heidelberg University, or if you are changing university during a master's degree or a there is a change of focus between the bachelor's and master's degree, modules up to a volume of 30 CP from the bachelor's degree in computer science can be credited in the compulsory elective area upon application to the examination board, of which a maximum of 16 CP from the compulsory modules of the bachelor's degree are admissible. The available modules are listed in the module handbook for the bachelor's degree.

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C. Elective Field of Application

A total of 18 CP must be earned in the application area. Annex 3 regulates further details.

D. Cross-skills electives

A total of 6 CP must be completed in the elective area of interdisciplinary skills. The modules available for selection are described in the module handbook. This elective can also be replaced in whole or in part by specialist modules from the compulsory elective area of computer science; in this case, the grades, weighted according to credit points, are included in the calculation of the overall grade.

Remark:

It is recommended to complete the master's seminar and the master's internship in the thematic context of the master's thesis.

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Appendix 2: Course of study

- The following study plan is to be understood as an example, but it is recommended to follow it as a matter of principle.
- Depending on the choice of individual classes and lectures, there may be temporal shifts.

Year 1

Compulsory modules in computer science	44 LP
Application area	10 LP
Cross-skills electives / compulsory (elective) modules	6 LP
Total Year 1	60 LP

Year 2

Master seminar	4 LP
Master practical	8 LP
Compulsory modules in computer science	6 LP
Application area	8 LP
Master's thesis	30 LP
Master colloquium	4 LP
Total Year 1	60 LP

Total year 1 and year 2: 120 LP

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Appendix 3: Application area

- All application areas of the bachelor's degree in computer science can be selected as application areas in accordance with the appendix to the examination regulations for the bachelor's degree in computer science in their currently valid version.
- Other areas of application can be approved by the examination board in agreement with the responsible faculties within the scope of the courses offered at Heidelberg University if the desired area of application has a sufficient technical connection to the Master's program in Data and Computer Science.
- The credit points in the application area are provided by the "Application area (IAG)" module. The module handbook regulates further details.

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Appendix 4: Grading according to ECTS

In addition to the grade according to the German system, students who have successfully passed an examination receive an ECTS grade according to the following calculation:

- A the best 10%
- B the next 25%
- C the next 30%
- D the next 25%
- E the next 10%

The data collection can refer to an examination date, an academic year or to several academic years. The basis of the data is shown in the ECTS grade.

For the German version: Published in the Rector's Bulletin of August 30, 2010, p. 1265, amended on February 7, 2013 (Rector's Bulletin of February 28, 2013, p. 59) and most recently on September 29, 2021 (Rector's Bulletin of September 30 2021, p. 1251 ff.)

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