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**Examination Regulations at the University of Stuttgart for the
Master's Degree Program in Mathematics**

August 1, 2019

On the basis of § 19 Paragraph 1 Sentence 9 and § 32 Paragraph 3 Sentence 1 of the Landeshochschulgesetz (law on higher education in Baden-Württemberg) dated January 1, 2005 (GBl. 2005 p. 1), last amended by the law dated January 13, 2018 (GBl. p. 85), the Senate of the University of Stuttgart decided on February 13, 2019 on the study and exam regulations below for the master's degree program in Mathematics.

The Rector of the University of Stuttgart agreed on this statute on August 1, 2019 in accordance with § 32 (3) Sentence 1 of the Landeshochschulgesetz, reference number 7831.175-M-03.

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Preamble

The study and exam regulations for the master's degree program in Mathematics describes the structure of the university studies and the organization of examinations. It represents the regulatory framework and the legal basis for administering study courses consistently and evaluating academic achievements and examinations. It is therefore aimed both at students and examiners as well as the relevant organs of the University of Stuttgart.

I. General

§ 1 Purpose of the examination

The master's examination is an additional degree in a student's university studies which qualifies them for a profession. The master's examination should determine whether the student has acquired the ability to independently deal with and develop scientific issues in their master's subject using relevant methods, and to apply them in complex situations beyond the aims of their bachelor's degree program.

§ 2 Master's degree

Upon passing the master's examination, the University of Stuttgart awards the academic title "Master of Science" ("M.Sc.").

§ 3 ECTS credits and modules

- (1) Students must earn ECTS credits during the course of their university studies. They are a quantitative measure of the amount of time students spend on their university studies. Students must earn an average of 30 ECTS credits every semester. This corresponds to about 900 hours of work. Earning ECTS credits requires successfully taking part in courses or completing certain academic achievements, and is subject to passing the respective module examinations or sub-module examinations.
- (2) The university studies are divided into modules, for which a certain amount of ECTS credits are awarded after passing the module examinations or the sub-module examinations. ECTS credits are only awarded for a module when all academic achievements and examinations for the module as listed in the annex on exam regulations and in the module handbook have been completed successfully. The modules include related courses, projects and internships, and



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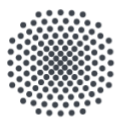
generally last one but sometimes a maximum of two semesters.

§ 4 Program structure, standard period of study, ECTS credits

- (1) The standard period of study is four semesters. This includes the module examinations as well as the master's thesis.
- (2) The total number of ECTS credits required to be awarded a master's degree is 120. Of this number, 30 ECTS credits are for the master's thesis and 90 for academic achievements and examinations throughout the university studies.
- (3) ECTS credits can only be earned through academic achievements and examinations which have been assessed as at least being "satisfactory" or "participated successfully". The distribution of ECTS credits to the individual modules and events in the compulsory elective and elective subject area is stipulated in the annex to this regulation and in the module handbook.

§ 5 Program and exam structure

- (1) The master's examination consists of module examinations throughout the course and a master's thesis. The courses cover all four semesters.
- (2) Students must take electives or compulsory electives totaling 90 ECTS credits. The modules are stipulated in the annex to these exam regulations. The modules must be completed from the Mathematics electives, the Scientific Methods compulsory elective area, the Application Modules electives, the Interdisciplinary Key Competencies electives and the elective core content area or the complementary modules of the bachelor's degree program in Mathematics. The catalog of compulsory elective and elective modules can be determined every semester by the Examination Committee.
- (3) The choice of modules is subject to the following restrictions. 36-72 ECTS credits must be completed from the Mathematics elective modules. 12 ECTS credits must be completed in the Scientific Methods compulsory elective area, including at least 6 ECTS credits by participating in a seminar. 6-36 ECTS credits must be completed from the Application Modules electives, of which a maximum of 27 ECTS credits may be selected from the catalog of complementary master's modules. Up to 6 ECTS credits can be chosen from the University of Stuttgart's catalog for interdisciplinary key competencies.
- (4) Students may carry out an internship outside the university, i.e. in a company (business, industry) or at a public authority, at any point up until completing their



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master's degree program. As part of the Application Modules electives, either 6, 12 or 18 ECTS credits may be earned by completing an internship outside the university. Further details are regulated in the annex to the exam regulations and the module handbook. The internship must be approved in advance by the chair of the Examination Committee.

- (5) A maximum of 24 ECTS credits can be selected from the modules in the elective core content area and the complementary modules of the bachelor's degree program in Mathematics. The type and scope of the academic achievements and examinations to be completed in this instance conform with the exam regulations and the module handbook for the bachelor's degree program. Modules which have already been passed as part of the bachelor's degree program may not be chosen. Modules from the elective core content area in the bachelor's degree program in Mathematics may be taken as part of the electives in the master's degree program, while complementary modules from the bachelor's degree program may also be taken as part of the Application Modules electives in the master's degree program.
- (6) Regarding the elective modules, the student declares the subjects in which they plan to take exams in their individual overview plan. The Examination Committee defines the rules about how an overview plan should be structured and what it needs in order to be approved.
- (7) An elective which has not yet been passed may be changed on up to two occasions by making a declaration to the Examination Office. This means the student is no longer obligated to retake examinations from the previous elective. This declaration can only be submitted providing the student has not yet lost the right to admission to examination for the master's degree program in Mathematics and has not yet passed all the examinations required to graduate. The previous module which was changed cannot be continued at a later stage.

§ 6 Examination deadlines

- (1) The right to admission to examination for the master's degree program in Mathematics will lapse if the master's examination is not passed within eight semesters, unless the candidate is not responsible for the delay. The decision is made by the chair of the Examination Committee at the request of the candidate.
- (2) Expectant mothers may exempt themselves from examinations in the last six weeks of their pregnancy unless they have explicitly declared themselves to be fit. This declaration must be submitted to the Head of the Examination Committee in writing and can be revoked at any time. Sentences 1 and 2 shall apply accordingly for new mothers until eight weeks after giving birth. This period shall be extended



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to twelve weeks for mothers having given birth prematurely or in the case of multiple births, or in the event of giving birth prematurely also by the period which could not be used according to Sentence 1. In the event of the death of a child, the mother may likewise take examinations before the end of this period if she explicitly requests to do so, providing this is not contradicted by the medical certificate. She is entitled to withdraw this declaration to the Head of the Examination Committee at any time. § 10 Paragraph 5 shall apply accordingly in terms of access arrangements in the sense of § 1 Paragraph 1 and § 9 Paragraph 1 of the Maternity Protection Act.

- (3) Students with dependent children under eight years old living in the same household are entitled to complete certain academic achievements and examinations after the relevant deadlines. The decision to extend the deadline is made by the chair of the Examination Committee at the request of the candidate. Deadlines for retaking examinations can only be extended by a maximum of two semesters. As a general rule, the period of time for completing a master's thesis can only be extended in the framework of the deadline in accordance with § 24 Paragraph 5 last sentence. In reasonable exceptional cases an additional extension may be given, whereby the extension may not exceed twice the period stipulated in § 24 Paragraph 5 last sentence. The authorization expires with the end of the semester in which the requirements named in Sentence 1 were waived. The deadline in Paragraph 1 may be extended by a maximum of six semesters per child, providing the requirements listed in Sentence 1 have been present throughout this period. Otherwise, the authorization shall expire no later than the end of the semester in which the child turns eight years old. Students must provide the relevant evidence. Students are also obliged to disclose any changes to the requirements at the first opportunity.
- (4) Students who look after a close relative in the sense of § 7 Paragraph 3 of the Care Period Act who requires nursing care as per §§ 14,15 of the Social Code XI are entitled to complete certain academic achievements and examinations after the relevant deadlines. The decision to extend the deadline is made by the chair of the Examination Committee at the request of the candidate. Appropriate supporting documents should be supplied with the application which give information about the timespan of the maintenance costs in particular. Deadlines for retaking examinations can only be extended by a maximum of two semesters; Paragraph 3 Sentence 4 shall apply regarding the amount of time for completing a master's thesis. The authorization expires with the end of the semester in which the requirements named in Sentence 1 were waived. The deadline in Paragraph 1 may be extended by a maximum of six semesters, providing the requirements listed in Sentence 1 have been present throughout this period. Students must provide the relevant evidence. Students are also obliged to disclose any changes to the requirements at the first opportunity.



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- (5) A student who is not in a position to regularly attend courses or complete their academic work as expected due to a long-term illness or a permanent physical disability is entitled to complete certain academic achievements and examinations after the deadlines set in the exam regulations. The decision to extend the deadline is made by the chair of the Examination Committee at the request of the candidate. Deadlines for retaking examinations can only be extended by a maximum of two semesters; Paragraph 3 Sentence 4 shall apply regarding the amount of time for completing a master's thesis, otherwise the extension is a maximum of two years. The candidate must provide the relevant evidence, in particular medical certificates. If there is any doubt, it is possible to ask a doctor nominated by the university to submit a certificate. Changes to the requirements must be disclosed at the first opportunity.
- (6) One job as an elected member of a committee which is prescribed by law or in a statutory organ of the university or Student Services for at least a year can remain uncompleted for at least one academic year when calculating the examination deadlines. A decision on this shall be made by the Rector if requested by the candidate.

§ 7 Examination Committee

- (1) The Faculty of Mathematics and Physics forms an Examination Committee for organizing examinations and performing all other tasks assigned to it by this regulation. The chair of the Examination Committee, the member representing him or her in the event of his/her absence as well as its representatives are appointed by the faculty board of the Faculty of Mathematics and Physics. The Examination Committee is made up of the following:
 1. three university professors or adjunct professors, providing that they are employed at the University of Stuttgart in a full-time capacity,
 2. a member of the scientific service,
 3. a student (in an advisory capacity).

Only a university professor or adjunct professor in the sense of no. 1 may lead the Examination Committee, even in a representative capacity. The business of the Examination Committee is generally conducted by the chair. Furthermore, the board can delegate certain tasks to the chair on a revocable basis.

- (2) The members serve a three-year term in office, while the student members serve for one year.
- (3) The Examination Committee ensures that the provisions of this regulation are observed. It regularly reports to the faculty regarding the development of



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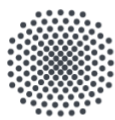
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examination and study periods as well as about the allocation of overall grades. The Examination Committee must ensure that academic achievements and examinations can be carried out during the periods specified in the regulation. For this purpose, students should be informed at the appropriate time about the type and number of academic achievements and examinations to be carried out as well as the relevant deadlines to be met.

- (4) The members of the Examination Committee have the right to be present when the exams are being taken.
- (5) The members of the Examination Committee and their representatives are subject to official secrecy. If they are not public sector employees they must be sworn to secrecy by the chair.
- (6) Negative decisions by the Examination Committee or its chair must be notified to the candidate in writing with an explanation without delay, stating the legal basis and including information on the right to appeal. Appeals against this decision must be submitted to the Examination Committee in writing within a month after the decision has been announced. If the Examination Committee does not redress the appeal, it must be submitted to the Vice Rector for Teaching and Advanced Education for a decision to be made.

§ 8 Examiners and assessors

- (1) The examiners are appointed by the Examination Committee. It can delegate this job to the chair. The assessors are appointed by the examiners.
- (2) As a general rule, only university professors, honorary professors and university lecturers or Privatdozenten are authorized to hold examinations, as well as such academic staff and teaching staff who have been given permission in accordance with the legal regulations. Academic staff and teaching staff can only then be appointed as assessors in exceptional cases when university teachers and university lecturers or Privatdozenten are not available to serve as examiners in sufficient numbers.
- (3) Pursuant to Paragraph 2, the member of the teaching staff who gave the course is usually appointed as an examiner for academic achievements and course-related examinations.
- (4) The assessor must have at least passed a master's examination in Mathematics or an exam of the same value.



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- (5) § 7 Paragraph 5 shall apply for examiners and assessors accordingly.
- (6) The examination date and the names of the examiners must be given to the persons to be examined at an appropriate time by posting it on a noticeboard or by other means. There is no legal right to be allocated a specific examiner.

§ 9 General admission requirements

- (1) A student can only be admitted to a module examination or a master's thesis if they
 - 1. have enrolled on the master's degree program in Mathematics at the University of Stuttgart at the time of registering for the examination,
 - 2. fulfill the subject-specific admission requirements for the specific examination,
 - 3. have presented the overview plan according to § 5 Paragraph 6 for admission to the elective modules
 - 4. can demonstrate that they have fulfilled the requirements for admission to the master's thesis, providing that they have fulfilled the requirements, and
 - 5. have not lost the right to admission to examination in Germany in the master's degree program in Mathematics or a study program with related content at a university or equivalent higher education institution, university of applied sciences, dual university or vocational academy, the degree of which is equivalent to a university of applied sciences degree. In a study program with related content this only applies to the loss of right to admission to examination in examinations or modules which are also required in the master's degree program in Mathematics (compulsory modules), as well as in the event of a loss of right to admission to examination due to missing the deadline (e.g. maximum length of studies). The previous clause does not apply in the event of a loss of right to admission to examination in a degree course of the same name. Related study programs include the degree course of the same name. The Examination Committee shall decide about which other study programs are considered to be related.
- (2) The application for admission must be submitted to the Examination Office in the appropriate form for each module examination. Providing they are not already in the possession of the university, the following documents must be attached to the application:
 - 1. evidence of the admission requirements named in Paragraph 1 No. 1 to 5, and



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2. an explanation of whether the candidate has already failed a master's examination or an examination in a study program with related content in accordance with Paragraph 1 No. 5, or whether they are currently being examined in such a course.
- (3) If it is not possible for the candidate to attach the documents in the required manner, the Examination Committee can allow for the proof to be provided in a different way on a case-by-case basis.
- (4) If not all documentary evidence can be supplied when registering for examinations, the admission for examination can be granted on condition that the missing evidence is submitted after the examination date. The candidate must make sure that the missing evidence is submitted no later than when the examination is being graded.
- (5) The Examination Committee shall decide on the admission to examination. A candidate shall be considered as having been admitted to examination providing their application has not been denied within a month of submission.
- (6) Admission may only be denied when
 1. the requirements listed in Paragraph 1 have not been met, or
 2. the documentation in accordance with Paragraph 2 is incomplete, or
 3. the candidate has lost the right to admission to examination in the master's degree program in Mathematics or a study program with related content as per Paragraph 1 No. 5 at a university or equivalent higher education institution in Germany or they are currently being examined in such a course.
- (7) The reporting deadlines for the examinations are announced by the Examination Office of the University of Stuttgart.

§ 10 Module examinations, academic achievements and examinations

- (1) The module examination is made up of one or many academic achievements and/or examinations. As a general rule, modules should only be assessed with an examination. Partial examinations are only permissible in justifiable exceptional cases.
- (2) Academic achievements include
 1. pre-exam preliminary requirements,
 2. non-graded proofs of achievement,
 3. graded proofs of achievement



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- (3) Examinations include
 - 1. written module examinations,
 - 2. oral module examinations,
 - 3. course-related examinations.
- (4) While examinations which do not form part of a course can be completed during a leave of absence, academic achievements and course-related examinations however cannot.
- (5) If a candidate demonstrates that they are not in a position to complete their examinations in the originally planned form, either in whole or in part, due to a long-term illness or a chronic health condition by presenting a medical certificate, the person representing the Examination Committee shall permit him or her to complete the examinations within an extended period of time or to complete examinations of the same value in a different form. The same applies for academic achievements.

§ 11 Course language

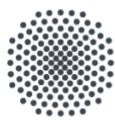
Courses are always held in either German or English. Courses can also be given in another language subject to giving prior notice. The academic achievements and/or examinations are always completed in the relevant language of the course.

§ 12 Academic achievements and course-related examinations

- (1) Academic achievements and course-related examinations are completed throughout the study program. They are completed either via written or oral examinations (e.g. presentation, analysis) or by successfully completing an internship.
- (2) At the beginning of the semester, the course lecturer must inform all students taking the course of the expected time, type and scope of the academic work or the course-related examination.

§ 13 Oral module examinations

- (1) In the oral examinations, the candidate should demonstrate that they have understood the fundamentals and contexts of the area to be examined and can put specific issues into a wider context.



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- (2) Oral examinations which are not held as part of a course are held before an examiner in the presence of a suitably qualified assessor either as a group examination or an individual examination.
- (3) An oral examination lasts between a minimum of 20 and a maximum of 60 minutes. Similarly to the length of an examination as per Sentence 1, in group examinations the examination shall last a minimum of 15 and a maximum of 45 minutes for each candidate. Providing the exact length of the examination is not stipulated in the annex to these exam regulations, it is set by the Examination Committee on the suggestion of the examiner and must be stated in the module handbook. It must be announced to the students no later than at the beginning of the lecture period in each semester.
- (4) The main subject matter of the oral examinations as well as the results has to be recorded in the form of a protocol, which must be signed by the examiner and the assessor. The result of the oral examination is determined by the respective examiner after consulting with the assessor, and communicated to the candidate directly after the examination.
- (5) Students of the same study program can take part in the oral examinations as listeners on request according to the number of places available. This participation does not cover the discussion and notification of the examination result. The public can be excluded for important reasons or if it is requested by the candidate.

§ 14 Written module examinations

- (1) In written examinations, the candidate should demonstrate that they can recognize a problem and find ways to solve it using the methods of their subject in a limited time and with limited access to resources.
- (2) Written examinations must be assessed by an examiner. The methods of assessment should be completed within four weeks. Furthermore, it particularly applies to tasks involving multiple choice questions as well as all other types of tasks which can be analyzed automatically, in that the exam questions and possible answers, the weighting factor, the number of marks for individual exam questions as well as the total number of marks are determined by an examiner.
- (3) Written examinations last a minimum of 60 and a maximum of 180 minutes. Providing the exact length of the examination is not stipulated in the annex to these exam regulations, it is set by the Examination Committee on the suggestion of the examiner and must be stated in the module handbook. It must be announced to the students no later than at the beginning of the lecture period in



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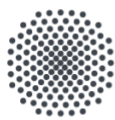
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each semester. A 60-minute written exam can be replaced by a 15 or 20-minute oral examination if this is announced on a noticeboard at the relevant institute or in another suitable manner no more than two weeks after the registration deadline and at least four weeks before the examination itself. The exact length of the oral examination is set by the Examination Committee on the suggestion of the examiner and must be stated in the module handbook.

- (4) Written examinations can be carried out in multiple choice format in part or in full. The respective examiners are responsible for defining and assessing the tasks. The examination tasks must make it possible to produce reliable results. For examinations in multiple choice format, multiple possible answers are provided for each question of which only one is correct. Marks are only awarded for a question if the correct answer is chosen; marks are not deducted.
- (5) Written module examinations where at least 75% of the marks are acquired through multiple choice questions are considered to have been passed when the candidate has got at least 54 percent of the total possible marks. If the average number of marks scored by all students in the module examination is less than 60 percent of the total possible score, the module examination is considered to have been passed when the number of marks scored is no more than 10 percent below the average number of marks achieved by the students on the examination date.
- (6) Before releasing the examination results, the examiner must check the individual multiple choice questions based on the results to see if the questions are incorrect. Incorrect questions may not be taken into consideration when calculating the maximum number of marks that can be achieved.

§ 15 Computer-supported module examinations

- (1) Computer-supported module examinations are computer-based examinations which are similar to written exams, in which open-ended questions, cloze text questions, matching task questions or multiple choice questions must be answered. The answers are sent electronically by the students and assessed automatically as much as possible. The content of the examinations is created by an examiner.
- (2) Before the computer-supported examination, the examiner makes sure that the electronic data can be identified with certainty and it can be unmistakably and permanently assigned to the students. The technical support team ensures that computer-supported examinations can proceed without any problems. The examination is carried out without a subject specialist being present.



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- (3) All additional requirements of a computer-supported examination are subject to the regulations applicable to written module examinations (§ 14 of this regulation).
- (4) Unlike § 14 Paragraph 2, computer-supported module examinations must be assessed by two examiners if the first examiner suggests a candidate be given the grade "unsatisfactory" in the event of a retake. In this case, one of the examiners must be either a university professor or an adjunct professor. In this instance, the grade is calculated using the mean of the individual assessments (§ 16 Paragraph 2 Sentence 3).

§ 16 Assessment of academic achievements and examinations, module grades

- (1) Academic achievements in accordance with § 10 Paragraph 2 No. 1 and 2 (preliminary requirements and non-graded proofs of achievement) are assessed as either "participated successfully" or "participated but without success". The former corresponds to at least a "sufficient" grade (4.0).
- (2) Examinations and graded proofs of achievement are assessed by the respective examiner using the following grading system:

1 = very good = an outstanding performance;
2 = good = a performance which is significantly above the average requirements;
3 = satisfactory = a performance which meets the average requirements;
4 = sufficient = a performance which despite its faults still meets the requirements;
5 = insufficient = a performance which does not meet the requirements due to significant faults.

The grades can be increased or reduced by 0.3 to enable a more differentiated assessment of the academic achievements and examinations. The grades 0.7, 4.3, 4.7 and 5.3 are not awarded.

Providing examinations are assessed by multiple examiners independently of one another, the grade is made up of the mean of the individual assessments; Paragraph 3 Sentence 3 applies here accordingly.

- (3) If a module is made up of several academic achievements and/or examinations, the grade shall be calculated using the weighted average of the grades from the individual academic achievements or examinations. The weighting of the individual academic achievements or examinations is stipulated in the module handbook. Only one place after the decimal is taken into account when calculating a grade; all other places are deleted without rounding.



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(4) The module grades are as follows:

(on average) below 1.5	=	very good,
(on average) between 1.6 and 2.5	=	good,
(on average) between 2.6 and 3.5	=	satisfactory,
(on average) between 3.6 and 4.0	=	sufficient,
(on average) above 4.0	=	insufficient.

The module grade (calculated as per Paragraph 3) is added in parentheses.

§ 17 Absence, withdrawal, deception, breach of regulations

- (1) An examination performance is considered to have been assessed as “insufficient” if the candidate misses an examination without good reason or if he or she withdraws from the examination after the beginning of the examination without good reason. The same applies when a written examination performance is not completed within the given period of time. It is possible for a candidate to withdraw from an examination for which they have already registered (PL) following the procedure given by the Examination Office without giving a reason up to seven days before the set examination date; for course-related examinations (LBP) this is only possible without giving a reason up until the end of the registration period for examinations. Sentence 3 does not apply for retakes.
- (2) The reasons for withdrawing from an examination or for being absent must be provided to the chair of the Examination Committee and the examiner in writing at the first opportunity before the examination date. In case of illness, a medical certificate must be submitted to the chair of the Examination Committee (as a general rule within three working days) stating that the candidate is not fit to sit an examination. This certificate should state the expected length of time that the person will be unfit to sit the examination. The illness of the candidate is considered the same as the illness of a child for whom the person is overwhelmingly responsible for providing or caring for a close relative when it concerns meeting the deadlines for first registering for an examination, retaking examinations, the reasons for being absent from examinations and complying with processing times for examinations. The chair of the Examination Committee is responsible for approving the requests.
- (3) If a candidate has taken an examination knowing of or negligently not knowing of a valid reason to withdraw from the examination, it is not possible to withdraw retrospectively for this reason. A negligent lack of knowledge shall particularly be considered to exist if the candidate has not immediately clarified the situation if there are any indications of health problems.



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- (4) If a candidate tries to influence the result of their study or examination performances by cheating or by using inadmissible aids, the corresponding academic or examination performance or master's thesis is assessed as "insufficient". The sanction provided for in Sentence 1 can also be realized if a candidate uses inadmissible aids after the task has been issued. A candidate who disrupts the orderly conduct of the examination may be excluded from continuing the academic achievement or examination by the examiner or the supervisor; in such cases the relevant academic or examination performance is assessed as "insufficient". In serious cases, the Examination Committee can exclude the candidate from completing further academic achievements or examinations.

§ 18 Passing and failing

- (1) A module examination is considered to have been passed if all examinations and graded proofs of achievement as per § 10 Paragraph 2 No. 3 have been assessed as being at least "sufficient" (4.0) and all preliminary requirements and non-graded proofs of achievement as per § 10 Paragraph 2 No. 1 and 2 have been passed.
- (2) The master's examination is considered to be passed if the master's thesis has been given a grade of at least "sufficient" (4.0) and the related module examinations have been passed.
- (3) If the candidate has not passed a module examination or the master's thesis, a written assessment on the matter is given with information on right to appeal. With module exams, candidates can also be informed about their results in a different way.
- (4) If a candidate has not passed their master's examination at the final attempt, a certificate is issued upon request to the Examination Office and presentation of the relevant evidence containing the academic achievements and examinations completed, along with the grades achieved, and acknowledging that the person has not passed the master's examination.

§ 19 Repeating examinations

- (1) Academic achievements and examinations which have been passed cannot be retaken.
- (2) Examinations which have not been passed or which are considered to not have been passed can be retaken once.



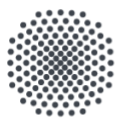
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- (3) An exam may only be retaken for a second time for one reason. It is not permitted to retake the master's thesis twice.
- (4) If the second retake of a written examination is assessed as being "insufficient" (5.0), it is followed by an oral extension shortly afterwards of 20-30 minutes in length. This does not apply in the cases of § 17 Paragraph 1 Sentence 1 and Paragraph 4, § 19 Paragraph 5 Sentence 2 and § 20 Paragraph 4. In this instance, the result of the retake, including the oral review, can only be "sufficient" (4.0) or "insufficient" (5.0). § 13 shall apply when conducting the oral review.
- (5) Exam retakes must be completed within two semesters. Otherwise, it must be given the grade "insufficient" (5.0). The chair of the Examination Committee can approve a withdrawal from an examination as per § 17 Paragraph 2 if there are valid reasons for doing so. Semesters of leave are not included in the number of semesters as per Sentence 1. It must always be possible to repeat examinations within a period of six months.

§ 20 Recognition of periods of study, academic achievements and examinations

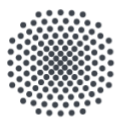
- (1) The representative of the Examination Committee is responsible for recognizing academic achievements and examinations. He or she can refer doubtful cases to the Examination Committee for a decision to be made.
- (2) Academic achievements and examinations which are completed in study programs at the University of Stuttgart or at other state or state-recognized universities and vocational universities in Germany or in study programs at state or state-recognized universities overseas are recognized, providing that they do not significantly differ from the achievements they replace in terms of the skills acquired. There is in any event no significant difference if the content, learning objectives and scope essentially correspond with the requirements of the module at the University of Stuttgart. If individual achievements required for certain academic achievements and examinations to be recognized are lacking, the Examination Committee can specify additional achievements to be completed. The help of the relevant professor may be called upon in examining the requirements mentioned above. Providing agreements and conventions between the Federal Republic of Germany and other countries on the equivalence of degrees in higher education (equivalency agreements) encourage overseas students contrary to Sentence 1, the regulations of the equivalency agreement shall apply. The recognition can be withheld if more than half of the ECTS credits to be earned are due to be recognized from the master's examination or the master's thesis.



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- (3) Paragraph 2 shall apply accordingly for periods of study, academic achievements and examinations in state-recognized distance learning courses; Paragraph 2 shall likewise apply for periods of study, academic achievements and examinations at other educational facilities, in particular at technical colleges and schools of engineering and officer schools in the former German Democratic Republic.
- (4) Failed attempts in academic achievements and examinations in comparable or other study programs are officially recognized providing they are in the same subject matter as the master's examination in the master's degree program in Mathematics.
- (5) If academic achievements and examinations are recognized, the grades, providing the grading system is comparable, must be accepted and included in the evaluation matrix specified in § 16 when calculating the overall grade. If the grading system is not comparable, the word "passed" is entered. In this case, it is not included when calculating the module grades and the overall grade. This recognition is marked on the certificates.
- (6) If the requirements of Paragraphs 2 and 3 are met, there is a legal entitlement to recognition. Academic achievements and examinations are recognized on request. The application must be made within two semesters of enrolling in a study program or after returning from studying abroad; applications made at a later stage are excluded. It is the responsibility of the person submitting the application to provide the required information and documents relating to the performances to be recognized. The burden of proof that an application does not meet the requirements for recognition lies with the office as per Paragraph 1 which carries out the recognition process.
- (7) If students have already successfully completed academic achievements and examinations from the master's degree program (master's modules taken in advance) as part of their bachelor's degree at the University of Stuttgart due to the exam regulations in place for the bachelor's degree program in addition to the requirements of the master's degree program, these are officially recognized towards the master's examination. If the associated academic achievements and examinations have not been passed, the failed attempts are recognized towards the master's examination.
- (8) Periods of study from previous university studies are accredited according to the performances recognized. This means that placement into a certain semester is based on the extent of the performances recognized.



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- (9) Knowledge and skills gained outside of higher education are recognized providing they are equivalent in terms of content and level to the academic achievements and examinations which they are supposed to replace. Paragraph 6 Sentences 2 to 4 shall apply to the recognition accordingly. The burden of proof that the requirements for recognition have been fulfilled is with the student. Recognition is limited to modules worth a maximum of 60 ECTS credits, recognition of the master's thesis is excluded. A placement test may be conducted if there are any doubts about certain knowledge and skills having been acquired based on the evidence submitted. This placement test may be conducted either orally or in writing. The content and nature of the placement test must be structured so that the examiners can be sufficiently certain from considering the documents submitted that the student has the knowledge and skills which are gained in the modules to be recognized. At least one examiner must be appointed by the Examination Committee to conduct the placement test, for which § 8 shall apply accordingly. Paragraphs 5 and 8 shall apply accordingly in the event of the performances in question being recognized.

II. Master's examination

§ 21 Purpose of the master's examination

The master's examination should determine whether the students have acquired the ability beyond the aims of their bachelor's degree program to independently deal with and develop scientific issues in their master's subject using relevant methods.

§ 22 Type and scope of master's examination

- (1) The master's examination consists of
1. the modules listed in the annex to these exam regulations, taking the provisions of § 5 into consideration
 2. the master's thesis.
- (2) As part of the master's examination, examinations can be taken in up to four modules in addition to those which are mandatory (additional modules). The result of these examinations must be included on the certificate if requested by the candidate. However, they are not taken into consideration when determining the overall grade.



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§ 23 Internship

Up to 18 ECTS credits can be earned by completing an internship outside the university. The details to this are stipulated in § 5 Paragraph 4.

§ 24 Master's thesis

- (1) The master's thesis should demonstrate that the candidate is able to perform a task in the field of Mathematics independently using scientific methods within a set period of time and to present the results in an appropriate manner. The master's thesis is worth 30 ECTS credits.
- (2) Any university professor, honorary professor, university lecturer or Privatdozent to whom the authorization to conduct examinations has been given in accordance with legal regulations is entitled to assign a master's thesis as an examiner.
- (3) The topic of the master's thesis cannot be released before the student has earned at least 60 ECTS credits, and providing the student has demonstrated that they have fulfilled the requirements for admission to the master's thesis. After the topic has been assigned by the examiner or the chair of the Examination Committee, the candidate must register the master's thesis with the Examination Office at the first opportunity. The topic and the time when the topic was released must be recorded. The topic can only be returned once and only within the first four weeks of the processing time.
- (4) The master's thesis may also be submitted in the form of a piece of group work if the contribution from the candidate can be unambiguously demarcated based on sections, page numbers or other objective criteria, if it is clearly distinguishable and can be assessed and if it meets the requirements of Paragraph 1.
- (5) The time limit for the master's thesis is six months. The type and scope of the task must be limited by the examiner so that the intended deadline for processing can be met. The time limit can be extended by the Examination Committee by a maximum of three months on request by the person to be examined for reasons which are beyond his or her control.
- (6) Generally, the master's thesis should be written in German. The examiner can also allow the master's thesis to be written in another language if requested by the candidate. In this case, the piece of work must have a summary written in German attached as an annex. The master's thesis can also include multimedia components on electronic data carriers alongside a printed text, providing the topic requires it and the examiners have given their consent.



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- (7) The finished master's thesis must be submitted to the examiner in three bound copies within the time limit as per Paragraph 5. A copy in electronic form must also be submitted. The time of submission must be recorded. When submitting the research project, the candidate must ensure in writing
 1. that he or she has completed the work or the part of the group work marked as such independently,
 2. that he or she has not used any sources other than those stated, and has marked all parts of the text taken either verbatim or in spirit from other pieces of work accordingly,
 3. that the piece of work submitted has not been the subject of another examination procedure, either in full or to a significant extent, and
 4. that the electronic version corresponds with other versions.
- (8) Part of the master's thesis is a 45-minute presentation about its content.
- (9) The master's thesis is assessed by two examiners, of whom one is the person who assigned the topic in accordance with Paragraph 2. One of the examiners must be a university professor, adjunct professor, Privatdozent or honorary professor. He or she assesses the master's thesis using one of the grades listed in § 16. The grade for the master's thesis is formed from the average of the two individual assessments. The assessment process should be completed after no more than two months.
- (10) The master's thesis can be repeated once if it is given a grade of "insufficient" (5.0). If the candidate is repeating his or her master's thesis, he or she is only allowed to return the topic of the master's thesis within the period of time specified in Paragraph 3 if the candidate has not used this option when producing their first master's thesis. A wish to retake the master's thesis must be registered with the Examination Office within six months of the result of the examination being announced. Otherwise, the retake is assessed as being "insufficient" (5.0), unless the candidate is not responsible for the missed deadline. The decision is made by the Examination Committee at the request of the candidate.

§ 25 Regulation on optional trial examination [not included]

§ 26 Calculation of overall grade and certificate

- (1) The overall grade of the master's examination is made up of the average of the grades for the modules which make up the master's examination as well as the grade from the master's thesis, weighted according to the number of ECTS



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credits for the module or the master's thesis respectively. If students in the elective modules choose modules which add up to a total of more than 120 ECTS credits including the master's thesis, the total number of credits cannot exceed 126. In this case, the overall grade is calculated based on the increased number of ECTS credits. § 16 Paragraph 3 and 4 shall apply to the calculation accordingly.

- (2) Outstanding performances (overall grade up to 1.2) are assessed with "Very good, with distinction".
- (3) If the candidate has passed the master's examination, he or she receives a certificate. Alongside the overall grade, the certificate also includes the individual module grades and the grade and title of the master's thesis. The overall grade is given to one decimal place. The certificate is signed by the chair of the Examination Committee. It bears the date when the last exam was taken. A translation of the certificate in English is issued.
- (4) The university issues a Diploma Supplement (DS), corresponding to the "Diploma Supplement Model" of the European Union/Council of Europe/UNESCO, which outlines the study program.

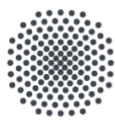
§ 27 Higher-education degree and master's degree certificate

- (1) The title of "Master of Science" ("M.Sc.") is awarded upon passing the master's degree examination.
- (2) At the same time as receiving the master's examination certificate, the graduate also receives a master's degree certificate bearing the same date as the examination certificate. This certifies that the degree has been awarded in accordance with Paragraph 1. A translation of the certificate in English is also issued.
- (3) The master's degree certificate is signed by the Office of the Dean of the Faculty of Mathematics and Physics and the Rector of the University of Stuttgart, and is furnished with the seal of the university.

III. Final provisions

§ 28 Inspection of examination files

- (1) Within a year of concluding an examination procedure, the candidate can, on



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request and with reasonable notice, inspect their written examinations, the reviews made on them by the examiners and the official examination minutes.

- (2) The procedure for inspecting the examination is given to the students in due course.

§ 29 Invalidity of an examination

- (1) If the candidate has cheated in an academic or examination performance and if this only comes to light after the certificate has been issued, the grade for the academic or examination performance in which the candidate has cheated can be amended. If necessary, the module examination can be declared to be "insufficient" and the master's examination to be "not passed".
- (2) If the requirements for admission to an examination had not been met without the candidate intending to cheat in this respect, and this only comes to light after the certificate has been issued, this situation can be remedied by passing this examination. If the candidate has deliberately gained fraudulent admission to the exam, the module examination can be declared to be "insufficient" and the master's examination to be "not passed".
- (3) The candidate must be granted the opportunity to make a statement before the decision is reached.
- (4) The incorrect examination certificate must be withdrawn and a new certificate issued if appropriate. The master's degree certificate must also be withdrawn if the examination has been declared to be "not passed" due to an act of deception in the sense of Paragraph 1. A decision pursuant to Paragraph 1 and Paragraph 2 Sentence 2 is excluded after a period of five years from the date on the examination certificate.

§ 30 Entry into force and interim regulations

- (1) These exam regulations shall enter into force on October 1, 2019. At the same time, the exam regulations for the master's degree program in Mathematics dated September 9, 2011 (Official Announcement No. 68/2011), last amended by the statute dated March 11, 2013 (Official Announcement No. 8/2013) shall be invalidated.
- (2) It first applies to students who enroll in the master's degree program in Mathematics in the winter semester 2019/2020. Students who enrolled in the master's degree program in Mathematics before this time can change to this new



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version of the exam regulations by means of an irrevocable written request to the Examination Office. This request must be made by October 31, 2019.

- (3) Students who started their university studies before this statute came into effect can still finish their university studies according to the previously applicable exam regulations until March 31, 2023.

Stuttgart, August 1, 2019

Prof. Wolfram Ressel (Rector)



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Annex: Overview of module examinations

No.	Module	Compulsory/elective	Semester				Academic achievement	Examination/duration	ECTS credits
			1	2	3	4			
Mathematical electives (36-72 ECTS credits)									
1	Mathematical elective 1	E	X	X	X		GC		3
2	Mathematical elective 2	E	X	X	X		GC		6
3	Mathematical elective 3	E	X	X	X		GC		9
4	Mathematical elective 4	E	X	X	X			ME	6
5	Mathematical elective 5	E	X	X	X			ME	9
6	Mathematical elective 6	E	X	X	X		P	ME	6
7	Mathematical elective 7	E	X	X	X		P	ME	9
Scientific Methods (12 ECTS credits, at least 1 seminar)									
8	Seminar module	CE	X	X	X			CRE	6
9	Project and course module	E	X	X	X			CRE	6
Application Modules (6-36 ECTS credits)									
a) Internship outside the university (0-18 ECTS credits)									
10	Internship outside the university (6 weeks)	E	X	X	X		NGC		6
11	Internship outside the university (12 weeks)	E	X	X	X		NGC		12
12	Internship outside the university (18 weeks)	E	X	X	X		NGC		18
Application project (0-6 ECTS credits)									
13	Application project	E	X	X	X		NGC		6
c) Complementary master's modules (0-27 ECTS credits)									
14	Complementary module 1	E	X	X	X		GC		3
15	Complementary module 2	E	X	X	X		P, GC		3
16	Complementary module 3	E	X	X	X		GC		6
17	Complementary module 4	E	X	X	X		GC		9
18	Complementary module 5	E	X	X	X		GC		12
19	Complementary module 6	E	X	X	X		GC		15
20	Complementary module 7	E	X	X	X		NGC		3
21	Complementary module 8	E	X	X	X		NGC		6
22	Complementary module 9	E	X	X	X		NGC		9
23	Complementary module 10	E	X	X	X		NGC		12
24	Complementary module 11	E	X	X	X		NGC		15
25	Complementary module 12	E	X	X	X		NGC	ME	6
26	Complementary module 13	E	X	X	X			ME	6



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27	Complementary module 14	E	X	X	X			ME	9
28	Complementary module 15	E	X	X	X			ME	12
29	Complementary module 16	E	X	X	X			ME	15
30	Complementary module 17	E	X	X	X			CRE	6
31	Complementary module 18	E	X	X	X			CRE	9
32	Complementary module 19	E	X	X	X			CRE	12
33	Complementary module 20	E	X	X	X			CRE	15
34	Complementary module 21	E	X	X	X	P		ME	6
35	Complementary module 22	E	X	X	X	P		ME	9
36	Complementary module 23	E	X	X	X	P		ME	12
37	Complementary module 24	E	X	X	X	P		ME	15
38	Complementary module 25	E	X	X	X	P		CRE	6
39	Complementary module 26	E	X	X	X	P		CRE	12
Key competencies (0-6 ECTS credits)									
40	Interdisciplinary key competencies	E	X	X	X		NGC		3
Master's thesis (30 ECTS credits)									
41	Master's thesis	C				X		ME	30

Notes:

1. Explanation of abbreviations:

- C = compulsory module; CE = compulsory elective; E = elective
- P = preliminary requirement; NGC = non-graded coursework; GC = graded coursework
- ME = module examination; W = written examination; O = oral examination;
- CRE = course-related examination

2. The semesters in which the module should be taken are marked by an "X".

3. If only "ME" is stated in the "examination/duration" column or the duration of the examination is not specified, the type and scope of the examination must be specified in the module handbook.

4. If "CRE" is stated in the "examination/duration" column, the type and scope of the examination is disclosed by the teachers at the start of the semester.