Study Regulations
of Saarland University
for the Bachelor's degree programme in Mathematics

29 April 2021

Note: This translation is provided for information purposes only. In the event of any discrepancy between the translation and the original German version published in the Official Bulletin (*Dienstblatt der Hochschulen des Saarlandes*), the provisions of the latter shall take precedence.

Pursuant to Section 60 of the Saarland Higher Education Institutions Act (SHSG) (Official Gazette of Saarland I, p. 1080) of 30 November 2016 most recently amended in law by the Act of 8/9 March 2021 (Official Gazette I, p. 736) and on the basis of the Joint Examination Regulations for Bachelor's and Master's Degree Programmes of the Faculty of Mathematics and Computer Science at Saarland University of 25 February 2021 (Official Bulletin p. 580) and on the Subject-Specific Regulations for the Bachelor's and Master's degree programmes in Mathematics at Saarland University supplementing the Joint Examination Regulations for the Bachelor's and Master's Degree Programmes of Faculty 6 (Faculty of Natural Sciences and Technology I – Mathematics and Computer Science) of 28 April 2016 (Official Bulletin No. 6, p. 588) and with the consent of the Saarland University Senate, the Faculty of Mathematics and Computer Science at Saarland University hereby issues the following Amendments to the Study Regulations Governing the Bachelor's Degree Programme in Mathematics.

Section 1
Scope

These study regulations, which govern the content and structure of the Bachelor's degree programme in Mathematics, are based on the Joint Examination Regulations for the Bachelor's and Master's Degree Programmes of the Faculty of Mathematics and Computer Science at Saarland University of 25 February 2021 (Official Bulletin, p. 580) and on the Subject-Specific Regulations for the Bachelor's and Master's degree programmes in Mathematics of 28 April 2016 (Official Bulletin p. 588). The Faculty of Mathematics and Computer Science is responsible for organizing the teaching, study curriculum and examinations relating to these programmes.

Section 2
Objectives of the degree programme and career relevance

(1) The Bachelor's degree programme in Mathematics leads to an initial academic qualification with students on the programme acquiring the basic scientific concepts, knowledge and skills in the field of mathematics. Graduates from the Bachelor's degree programme are able to understand the problems and questions addressed in mathematics and are equipped to tackle these problems and questions by generating appropriate mathematical models and applying relevant scientific methods. The Bachelor's degree programme in Mathematics aims to prepare graduates for a career working in mathematics and related areas.

(2) The academic training that students acquire on the B.Sc. programme in Mathematics provides a solid foundation on which to study for a Master's degree in this and related disciplines.

Section 3
Start and duration of programme

(1) Students can begin the programme at the beginning of the winter or summer semester of each year. However, it is recommended that students begin the programme in the winter semester.

(2) The curriculum is organized such that the programme can be completed in six semesters (standard period of study).

Section 4
Types of academic instruction

The curriculum content is taught using the following types of academic instruction:

1. Lectures (German abbreviation: V): Lectures serve to introduce a particular subject area and also provide an overview of the relevant theoretical concepts and principles, methodologies and skills, technologies and practical implementations that are common to the subject. Lecture courses provide suggestions for further reading on a topic and open the way to acquiring a deeper understanding of an area through subsequent practical exercise and problem-solving classes, practical skills classes and self-directed study.

2. Practical exercise and problem-solving classes (German abbreviation: Ü): Exercise and problem-solving classes are used primarily to supplement and reinforce what was learned in the lectures and take place as far as possible in small groups. Students work on representative problems as this provides an opportunity for them to apply and deepen the knowledge they acquired in the lectures, to assess their personal understanding of a specific area and to clarify any questions that they may have.

3. Seminars (German abbreviation: S): Seminars provide an opportunity for students to broaden the knowledge and skills that they have already acquired and to gain a deeper understanding of a particular field of research by participating in discussions, giving presentations or completing seminar assignments based on their study of the specialist literature and relevant academic sources. They also help students acquire the skills necessary for the effective oral and visual presentation of scientific and academic content and encourage students to engage in critical analysis and discussion of research results. A seminar may also include project-related work in areas of current scientific interest or debate. The deeper understanding of a particular field that students acquire through project-related work in the Bachelor's seminar may provide the basis for their Bachelor's thesis project. Introductory seminars (*Proseminare*) differ from seminars in terms of the necessary prior knowledge and student workload. Introductory seminars generally build on prior knowledge from the mandatory section; the difference in student workloads is reflected in the ECTS credits awarded for introductory seminars and seminars.

4. Practical skills classes and project work (German abbreviation: P): Practical skills classes or projects offer a number of practical, subject-related topics that introduce students to the specific approaches and methods used in a particular discipline or field of study. The necessary theoretical knowledge underlying a specific topic is acquired by attending lectures and studying the relevant scientific literature. An additional goal of the practical skills classes is to provide students with the opportunity to gain practical experience with application-oriented methods. Projects tend to address interdisciplinary topics. Working on a topic offers students the opportunity to work in supervised groups to tackle specific assignments from the initial solution design concept through to its final practical implementation. Students learn about the relationships between theory and practice not only through their own independent study and research, but also through project-based teamwork. Participation in a particular practical assignment or project may be dependent on a student having first successfully completed a required course of lectures and practical exercise classes.

Section 5
Structure and content of the programme

(1) To graduate from the programme, students shall earn a total of 180 credits (often referred to in Germany as 'credit points' or 'CPs') as defined by the European Credit Transfer System

(ECTS). Of these, at least 153 credits and at most 165 credits shall be from graded assignments. As a rule, students are required to earn 30 credits per semester.

(2) The degree programme comprises mandatory modules, mandatory elective modules and elective modules as well as modules from an integrated subsidiary subject.

Mandatory section. In the mandatory section, students are required to earn 12 graded credits for the Bachelor's thesis and a further 75 credits (69 of which graded):

Module	Module element	hrs/wk	Semester(s) for standard period of study[1]	Repeat cycle	ECTS credits	Type of examination
Fundamentals of Mathematics, 63 credits (g)						
Analysis I and II[2]	Lecture course: Analysis I	4	1-6	annual (WS)	9 (g)	PVL*, written exam
	Exercise and problem-solving class: Analysis I	2				
	Lecture course: Analysis II	4	2-6	annual (SS)	9 (g)	PVL*, written exam
	Exercise and problem-solving class: Analysis II	2				
Analysis I and II – Combined (G)[2]	Combined examination on the contents of Analysis I and Analysis II				18[3] (g)	oral exam
Analysis III	Lecture course	4	3-6	annual (WS)	9 (g)	PVL*, written exam
	Exercise and problem-solving class	2				
Linear Algebra I and II[4]	Lecture course: Linear Algebra I	4	1-6	annual (WS)	9 (g)	PVL*, written exam
	Exercise and problem-solving class: Linear Algebra I	2				
	Lecture course: Linear Algebra II	4	2-6	annual (SS)	9 (g)	PVL*, written exam
	Exercise and problem-solving class: Linear Algebra II	2				
Linear Algebra I and II – Combined (G)[4]	Combined examination on the contents of Linear Algebra I and II				18[5] (g)	oral exam

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[1] The first number indicates the recommended semester of study, the second number is the standard period of study.
[2] For grading purposes, the module grade of Analysis I and II (as the averaged grade of the Analysis I and II examinations) is compared with the grade of Analysis I and II - G. The better of the two grades shall be applied.
[3] Together with Analysis I and II 18 credits in total.
[4] For grading purposes, the module grade of Linear Algebra I and II (as the averaged grade of the Linear Algebra I and II examinations) is compared with the grade of Linear Algebra I and II – G. The better of the two grades shall be applied.
[5] Together with Linear Algebra I and II 18 credits in total.

Module	Module element	hrs/wk	Semester(s) for standard period of study[1]	Repeat cycle	ECTS credits	Type of examination
Introduction to Numerics	Lecture course	4	3-6	annual (WS)	9 (g)	PVL*, written or oral exam
	Exercise and problem-solving class	2				
Stochastic Methods I	Lecture course	4	4-6	annual (SS)	9 (g)	PVL*, written or oral exam
	Exercise and problem-solving class	2				
Programming, 6 credits (u)						
Elements of Programming	Lecture course	2	2-6	annual (SS)	6 (u)	PVL*, written or oral exam
	Exercise and problem-solving class	2				
Final stage of the degree programme, 6 credits (g)						
Bachelor's Seminar	Seminar		4-6		6 (g)	oral/written

Mandatory electives section. In the mandatory electives section of the main subject, students must earn at least 45 credits (all graded):

Module	Module element	hrs/wk	Semester(s) for standard period of study	Repeat cycle	ECTS credits	Type of examination
Core lecture courses, in total 27 credits (g)						
Core lecture courses 1, 9 credits (g)						
Theory of Functions	Lecture course	4	4-6	annual	9 (g)	PVL*, written or oral exam
	Exercise and problem-solving class	2				
Algebra	Lecture course	4	3-6	annual	9 (g)	PVL*, written or oral exam
	Exercise and problem-solving class	2				
Core lecture courses 2, 9 credits (g)						
Stochastic Methods II	Lecture course	4	5-6	annual	9 (g)	PVL*, written or oral exam
	Exercise and problem-solving class	2				

Module	Module element	hrs/wk	Semester(s) for standard period of study	Repeat cycle	ECTS credits	Type of examination
Core lecture courses, in total 27 credits (g)						
Core lecture courses 1, 9 credits (g)						
Image Processing and Computer Vision	Lecture course	4	3-6	annual	9 (g)	PVL*, written or oral exam
	Exercise and problem-solving class	2				
Core lecture courses 3, 9 credits (g)						
The modules which can be selected from this section are indicated in the module catalogue.						
Core or advanced lecture courses, 6 – 9 credits (g)						
The choice of advanced lecture courses is newly created for each semester and announced before the beginning of each semester.						

Introductory seminar, 5 credits (g)						
The choice of introductory seminars (*Proseminare*) is newly created for each semester and announced before the beginning of each semester.						
Introductory seminar	Seminar	2	2-6		5 (g)	oral/written
Seminar, 7 credits (g)						
The choice of seminars is newly created for each semester and announced before the beginning of each semester.						
Seminar	Seminar	2	3-6		7 (g)	oral/written

Electives section. In the electives section, ungraded assignments amounting to 9-12 ECTS credits are acquired.

Modules can be freely selected from the Bachelor's degree programme in Mathematics as ungraded modules in the electives section, provided they are not covered by the mandatory or mandatory electives sections. The electives section also includes:

Module	Module element	hrs/wk	Semester(s) for standard period of study	ECTS credits	Type of examination
Supervision of exercise and problem-solving classes					
Tutoring[6]				4 (u)	Course certificate
Soft skills seminars					
Module name					Course certificate
Language Courses (max. 6 ECTS credits) Modern languages, no native languages.					
Language Course				max. 6 (u)	Course certificate
Work Placement/Internship (maximum 12 credits) By request to the Examination Board with its approval.					
Work placement/Internship				max. 12 (u)	Certificate/report
By request to the Examination Board, further modules can be included, for example the recognition of student engagement (e.g. General Student Committee (AStA), student parliament (StuPa)) up to 3 ECTS credits and key skills up to 3 ECTS credits.					

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[6] It is possible to select more than one tutoring module provided that the exercise and problem-solving groups are assigned to different modules. In the modules Analysis I and II / Linear Algebra I and II, exercise and problem-solving groups for Analysis I and Analysis II / Linear Algebra I and Linear Algebra II can be included separately in the electives section.

[*] Preliminary assessment/exam admission prerequisite (German abbreviation: PVL)

Integrated subsidiary subject (elective module). 36 credits are recommended from modules in a subsidiary subject, at least 27 graded credits from modules in a subsidiary subject are required. A maximum of 9 credits from modules in the subsidiary subject can be replaced by graded or ungraded credits from the advanced lecture course section of the Bachelor's degree programme in Mathematics. The choice of subsidiary subjects offered may be modified by the Examination Board and is published in the Examinations Office.

(3) The number of places available in practical skills classes, introductory seminars, seminars and in the mandatory elective modules 'Tutoring', 'Soft Skills Seminar' and 'Language Courses' are limited and vary depending on the specific module or module element. Admission to these modules is managed by the module coordinator.

(4) Academic credits are either graded or ungraded. A graded academic assessment or examination cannot be split into ungraded and graded credits.

(5) If a student fails an assessment or examination for a module in the Fundamentals of Mathematics section as per Section 5(2) at the first scheduled attempt, the student shall be permitted to retake the assessment or examination on one further occasion within the same examination or assessment period provided that the module completion deadline has not expired (cf. section 13(4) of the Examination Regulations). In such cases, the first failed attempt shall be treated as if it had not occurred (cf. provisions governing the '*Freiversuch*' option in section 17(4) of the Examination Regulations). The module completion deadline for the Fundamentals of Mathematics modules as per Section 5(2) is semester 6.

(6) A student who received academic credits for successfully completing Fundamentals of Mathematics modules as per Section 5(2) as well as core lecture courses is permitted to retake the assessment or examination on one further occasion within the same examination period and during the standard period of study in order to improve the mark awarded (cf. Section 13(4) of the Examination Regulations). A student who has received academic credits for successfully completing an advanced lecture course is permitted to retake the assessment or examination on one further occasion within the same examination period in order to improve the mark awarded, provided that the lecturer gave notice at the beginning of the course that the final examination or assessment may be repeated for this purpose. The student will be awarded the higher of the two grades achieved. In all other cases, students are not permitted to repeat an assessment or examination for which they have already achieved at least the minimum passing grade.

(7) The Fundamentals of Mathematics modules and Programming modules as per Section 5(2) are offered at least once every year. The core lecture courses 1 and 2 offered in the mandatory electives section of the programme are offered at least once every year. If in exceptional circumstances it is not possible to offer a mandatory elective module from Core Lecture Courses 1 or Core Lecture Courses 2 within a year, a suitable module may be substituted following a justified application by the student to the Examination Board. At least one module is offered each semester from the modules in the Core Lecture Courses 3; in two consecutive semesters at least two different modules. Introductory seminars, seminars and advanced lecture courses will not necessarily be repeated. The Dean of Studies will ensure that a sufficient number of modules are offered each academic year.

(8) The language of instruction in the mandatory modules of the Bachelor's degree programme in Mathematics is usually German; mandatory elective modules are usually conducted in English. The language of instruction will be announced at the beginning of the module or module element.

(9) The choice of modules offered as mandatory electives may be modified according to feasibility and requirements, though any such change shall require the approval of the Examination Board. New or modified modules or module elements, their weighting in ECTS

credits and their classification within the different sections of the programme will be announced before the semester begins.

(10) Detailed information regarding the content of modules and module elements are described in the module catalogue that will be made available in suitable form. Any changes or amendments to the information in the module catalogue that are not covered by the provisions of these regulations shall be reported to the Dean of Studies and documented appropriately.

(11) Course attendance may be compulsory for certain introductory seminars, seminars, practical exercise or problem-solving classes and practical skills classes. Students will be notified of this by the instructor at the beginning of the course.

Section 6
Study plan

The Dean of Studies will compile an example study plan based on these study regulations with recommendations on how students can organize and structure their studies efficiently (see Appendix). The study plan will be made available in suitable form. The range of modules offered in a particular semester will be published in the Saarland University course catalogue for that semester.

Section 7
Study counselling

(1) The Central Student Advisory Service (*Zentrale Studienberatung*) at Saarland University provides counselling and guidance to prospective students and enrolled students concerning the content, structure and requirements of academic study at Saarland University. It can also advise and assist students with respect to their study options as well as with planning and organizing their studies.

(2) Questions concerning curricular demands, learning objectives, admission requirements and study planning and organization can be addressed to the departmental academic adviser for mathematics.

(3) Questions specific to individual modules should be addressed to the respective module coordinators.

Section 8
Studying abroad

Students have the opportunity to spend part of the programme studying abroad. Students interested in studying abroad should attend a study-abroad consultation session, take preparatory language courses if required, and should clarify credit transfer arrangements in accordance with the relevant examination regulations by completing a study abroad learning agreement. Information on study abroad opportunities, exchange programmes, scholarships and administrative formalities is available from Saarland University's International Office or from the relevant departmental or subject representative. As foreign host universities and scholarship-awarding bodies often have early application deadlines and long application processing times, study abroad applications should normally be submitted to the Examinations Office one year before the planned start date.

Section 9
Bachelor's thesis and Bachelor's seminar

(1) By completing a Bachelor's degree thesis, students demonstrate that they are able to work independently on tackling problems in mathematics or in related fields. The completion period for the thesis is three months. Students are awarded 12 ECTS credits for completing their Bachelor's thesis.

(2) Before finishing their Bachelor's thesis, each student shall have successfully completed a Bachelor's seminar in an area with direct relevance to the topic being addressed in the thesis. Students attending a Master's seminar shall give an oral presentation on the problem they propose to tackle in their Bachelor's thesis.

(3) Students shall register their thesis project with the Examinations Office no later than one semester after successfully completing the Bachelor's seminar. Students who fail to meet this deadline will be required to successfully complete another Bachelor's seminar.

(4) A colloquium lasting 30 minutes shall be held in order to establish that the Bachelor's thesis is the candidate's own original work. The colloquium shall be held no later than six weeks after the candidate submits the printed version of the Bachelor's degree thesis.

Section 10
Commencement

(1) This regulation shall come into force on the day after it is announced in the Official Bulletin of the Institutions of Higher Education in Saarland (*Dienstblatt der Hochschulen des Saarlandes*).

(2) Students who began studying for the Bachelor's degree programme in Mathematics at the Faculty of Mathematics and Computer Science before these regulations entered into force may continue to study under the study and examination regulations applicable at the time they began the degree programme but are required to complete their studies including the final academic assessment and examination phase by the end of summer semester 2024.

Saarbrücken, xx January 2022

President of Saarland University
Univ.-Prof. Dr. Manfred Schmitt