

Legal note

This document constitutes a non-official translation of a preliminary version of the examination regulations for the Master's program "Mathematics".
Only the German version (German: Fachspezifische Prüfungsordnung für den Masterstudiengang "Mathematics" an der Universität Bremen) dated February 9, 2022 (including possible amendments as well as corrections) is binding.
Translation: Academic Advisory Office – Mathematics (www.szmathe.uni-bremen.de)

Subject-specific examination regulations for the Master's program "Mathematics" at the University of Bremen

The Faculty Council of the Faculty 3 (Mathematics / Computer Science) has decided the following regulations on February 9, 2022, in accordance with § 87 sentence 1 number 2 of the Bremen University Act (German: Bremisches Hochschulgesetz; abbreviation: BremHG) in conjunction with § 62 BremHG in the version announced May 9, 2007 (incl. amendments as well as corrections).

These subject-specific examination regulations apply in conjunction with the General Part of the Examination Regulations for Master's degree programs (abbreviation: AT MPO) at the University of Bremen dated January 27, 2010, in the currently valid version.

§ 1

Scope of study and degree

(1) For the successful completion of the Master's program "Mathematics", a total of 120 credit points (CP) according to the European Credit Transfer and Accumulation System (ECTS) must be acquired. This corresponds to four semesters of regular study.

(2) On the basis of the successful completion of the Master's examination, the degree

Master of Science
(abbreviated M.Sc.)

will be awarded. The following note will be added to the Examination Certificate: "The courses in the area of Mathematics is offered in English. The applied subject can be completed in English or German, depending on individual choice."

§ 2

Curriculum structure, modules and credit points

(1) The Master's program "Mathematics" is offered as a Master's program according to § 4 article 1 sentence 1 AT MPO. This may include the study of an application subject to the extent of 18 CP. The study program can be completed "with an application subject" (see (3) for details) or "without an application subject" (see (4) for details). The study program including the option "without an application subject" includes a subject-related elective "Free Choice" with a total of 9 CP. A one-time change between the options "with an application subject" and "without an application subject" is possible upon a formal and justified request to the examination board.

(2) The Master's program "Mathematics" includes:

- the choice of an "Area of Specialization". One of the following four specializations must be chosen: "Algebra", "Analysis", "Numerical Analysis" or "Statistics/ Stochastics".
- The subject areas that are not selected for specialization together form the "Area of diversification". An already selected subject area for specialization can be changed upon a formal and justified request to the examination board.

(3) The study program including the option "with an application subject" is structured as follows:

- a) Master's Thesis (Master Thesis), 30 CP;
- b) Mathematics with a total of 72 CP, divided into:
 - Area of Specialization according to (2) with Compulsory Modules and a total amount of 36 CP;
 - Area of Diversification according to (2) with Compulsory Modules summing up to 27 CP;
 - Compulsory Elective Module, another module worth 9 CP is taken, either in the specialization or from the area of diversification.
- c) Application Subject according to Annex 2.5 with a total of 18 CP and with Compulsory Modules and/or Compulsory Elective Modules:
 - Students are free to continue an application subject already completed or to start a new application subject. If an application subject already completed in the previous study program is continued, modules according to Annex 2.5 must be taken. If a new application subject is started, an individual study plan is to be composed together with a study consultant (see also the corresponding information in Annex 2.5). The individual study plan is to be submitted to the examination office.
 - The modules listed in Annex 2.5 can be supplemented by decision of the examination board before the start of the respective semester after consultation between Faculty 3 and the corresponding offering Faculty. In this case, it must be ensured that students who are in the examination process can complete the examination with the offered courses.
 - The application subject can be changed once and upon a formal and justified request to the examination board. At the request of the student, the work performed in the de-selected application subject will be reported as additional work performed voluntarily in accordance with § 25 paragraph 2 and 3 AT MPO.

(4) The study program including the option "without an application subject" is structured as follows:

- a) Master's Thesis (Master Thesis), 30 CP;
- b) Mathematics with a total of 81 CP, divided into:
 - Area of Specialization according to (2) with compulsory modules of 36 CP or 45 CP as well as
 - Area of Diversification with compulsory modules according to (2) of 27 CP or 36 CP. For both areas, the total number of CP depends on the choice in which of the two areas the module "Reading Course B" with 9 CP is taken.
 - Compulsory Elective Module, 9 CP; one additional module worth 9 CP is taken, either in the specialization or in the diversification.
- c) Free Choice, an elective area with a total amount of 9 CP. Students choose from the courses offered by the Faculty 3 and that are not yet completed or from the General Studies of the University of Bremen.

(5) Appendix 1 presents the recommended courses of study, Appendix 2 regulates the examinations to be taken.

(6) Modules are carried out as compulsory, compulsory elective or as elective modules.

(7) The compulsory and compulsory elective modules in mathematics as well as in the applied subjects are offered at least on an annual basis.

(8) Compulsory and compulsory elective modules from the area Mathematics according to (3), letter b and (4), letter b, respectively, are offered in English. Compulsory, compulsory elective and elective modules of the application subject and the area Free Choice according to (4) letter c are

offered in German or English. The Faculty 3 ensures that the study program can be completed entirely in English.

(9) The courses assigned to each module are shown in the module descriptions.

(10) Courses are conducted according to § 6 paragraph 1 AT MPO. Other types of courses may be specified by decisions of the University Executive Board.

(11) Students who choose the option "without an application subject" may complete a professional internship of at least 4 weeks, usually 6 to 8 weeks. An internship report (ungraded) must be completed. The internship including the internship report can be credited or recognized with 6 CP in the area "Free Choice" (cf. (4), b). Further details are regulated by the corresponding internship regulations.

§ 3

Examinations

(1) Examinations are conducted in the forms according to §§ 8 ff. AT MPO and the Regulations of the University of Bremen for the Conduct of Electronic Examinations (DigiPrüfO UB/Digitalprüfungsordnung) in the currently valid version. The examination board may allow other forms of examinations in individual cases upon formal request of an examiner.

(2) A re-examination may be conducted in a different form than originally conducted in accordance with § 20 paragraph 4 AT MPO.

(3) Examinations are usually conducted in English, but can also be taken in another language after consultation with the examiner. In some application subjects it is possible that module examinations are offered in German.

(4) The compensation principle according to § 5 paragraph 8 AT MPO is not applied.

§ 4

Recognition and crediting

The recognition or crediting of achievements is carried out in accordance with § 22 AT MPO in the currently valid version.

§ 5

Admission requirements for modules

Except within the scope of § 6 paragraph 2, there are no admission requirements for modules.

§ 6

Module Master's thesis (including colloquium)

(1) The module "Master Thesis" (30 CP) comprises the Master's thesis and a colloquium. The topic of the Master's thesis must belong to the field of the chosen specialization according to § 2, (2).

(2) Prerequisite for the registration of the Master's thesis (incl. colloquium) is the proof of at least 81 CP at the time of registration.

(3) The processing time for the Master's thesis is 26 weeks. The examination board may approve a one-time extension of a maximum of 8 weeks upon a formal and justified request.

(4) The Master's thesis is written as an individual or as a group work with up to 3 persons. In the case of a group thesis, the contribution of each individual group member must be clearly recognizable, delimitable and assessable.

(5) The Master's thesis is written in English. The examination board may allow other languages upon request, provided that supervision and assessment are guaranteed.

(6) A colloquium is held for the Master's thesis. A joint module grade is calculated for the Master's thesis and the colloquium. The Master's thesis is included with 80 % and the colloquium with 20 % in the common grade.

§ 7

Overall grade of the Master's examination

(1) The overall grade is usually formed as a weighted arithmetic mean of the grades of the modules weighted with credit points. The following points are to be observed here:

a) The grade of the module "Master Thesis" receives the grade weight 63 CP.

b) If the option "with an application subject" is chosen, only the module with the best grade of the following three modules will be included in the overall grade: "Specialization A", "Diversification A" and one of the two compulsory elective modules; "Specialization C" or "Diversification C". The two modules not considered here are handled like an ungraded module in the further calculations.

c) If the option "without an application subject" is chosen, acquired grades and CPs of the area "Free Choice" are not included in the calculations.

(2) Ungraded modules are not included in the calculations.

§ 8

Scope and entering into force

These examination regulations come into force after approval by the President on October 1, 2022. They will be published in the Official Gazette of the Free Hanseatic City of Bremen. They apply to students who begin their studies in the Master's program "Mathematics" for the first time in the winter semester 2022/23.

Approved, Bremen, March 29, 2022

President of the University of Bremen

Attachments:

Appendix 1: Study plan of the Master's program "Mathematics"

1.1. Study plan of the Master's program "Mathematics" with application subject

1.2. Study plan of the Master's program "Mathematics" without application subject

Appendix 2: Modules and examination requirements

2.1. Master Thesis

2.2. "Mathematics" with application subject / without application subject

2.3. Application Subject

Appendix 1: Study plans of the Master's program "Mathematics"

The study plans represent a recommendation for the course of study. Modules can be attended by students in a different order. In particular, students who want to start a new application subject in the Master's program, and especially students who did not complete their Bachelor's program at the University of Bremen, are strongly advised to contact the Advisor Office – mathematics (szmathe@uni-bremen.de) and, if necessary, have an individual study plan coordinated and documented. Please refer to the explanations in Annex 2.5.

1.1 Study plan of the Master's program "Mathematics" with application subject

Study sections according to § 2, (3)		Mathematics, 72 CP				Compulsory Elective Modules, 9 CP	Master Thesis, 30 CP	Application Subject, 18 CP
		Compulsory modules, 63 CP						
		Area of Specialization, 36 CP		Area of Diversification, 27 CP				
1st year	1st sem.	SP-A Specialization A, 9 CP		D-A Diversification A, 9 CP		SP-C Specialization C, 9 CP or D-C Diversification C, 9 CP	Modules from one Subject listed in appendix 2.3, 18 CP	
	2nd sem.	SP-B Specialization B, 9 CP	AC-A Advanced Communications A, 9 CP	D-B Diversification B, 9 CP	AC-B Advanced Communications B, 9 CP			
2nd year	3rd sem.	RC-A Reading Course A, 9 CP						
	4th sem.						MTM Master Thesis (incl. Colloquium), 30 CP	

CP = Credit Points, sem. = Semester

1.2 Study plan of the Master's program "Mathematics" without application subject

Study sections according to § 2, (3)		Mathematics, 81 CP					Master Thesis, 30 CP	Free Choice, 9 CP	
		Compulsory modules, 72 CP							Compulsory Elective Module, 9 CP
		Area of Specialization, 45 CP or 36 CP; cf. § 2, (4), letter b			Area of Diversification, 27 CP or 36 CP; cf. § 2, (4), letter b				
1st year	1st sem.	SP-A Specialization A, 9 CP			D-A Diversification A, 9 CP	SP-C Specialization C, 9 CP or D-C Diversification C, 9 CP	see § 2, (4), letter b		
	2nd sem.	SP-B Specialization B, 9 CP	AC-A Advanced Communications A, 9 CP	RC-B Reading Course B, 9 CP (cf. § 2, (4), letter b)	D-B Diversification B, 9 CP			AC-B Advanced Communications B, 9 CP	
2nd year	3rd sem.	RC-A Reading Course A, 9 CP							
	4th sem.						MTM Master Thesis (incl. Colloquium), 30 CP		

CP = Credit Points, sem. = Semester, cf. = compare

Appendix 2: Modules and examination requirements

Abbreviations:

K. digit = module number; P = compulsory module, WP = compulsory elective module, W = elective module; CP = credit points; MP = module examination, TP = partial examination, KP = combination examination; PL = examination performance (= graded), SL = study performance (= graded or ungraded), LV = course related designation

2.1: Master Thesis, 30 CP

K. digit	Module title	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
MTM	Master Thesis (including Colloquium)	P	30	KP		PL: 2 SL: 0

2.2 Mathematics, with application subject 72 CP, without application subject 81 CP

2.2.1 Area of Specialization, 36 or 45 CP

2.2.1.1 Area of Specialization, 45 CP

K. digit	Module title	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
SP-A	Specialization A	P	9	KP (LV)		PL: 1 SL: 1
SP-B	Specialization B	P	9	KP (LV)		PL: 1 SL: 1
AC-A	Advanced Communications A	P	9	TP (LV)	Part 1, 4.5 CP Part 2, 4.5 CP	PL: 2 SL: 0
RC-A	Reading Course A	P	9	MP (LV)		PL: 0 SL: 1
RC-B	Reading Course B	P	9	MP (LV)		PL: 0 SL: 1

2.2.1.2 Area of Specialization, 36 CP

K. digit	Module title	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
SP-A	Specialization A	P	9	KP (LV)		PL: 1 SL: 1
SP-B	Specialization B	P	9	KP (LV)		PL: 1 SL: 1
AC-A	Advanced Communications A	P	9	TP (LV)	Part 1, 4.5 CP Part 2, 4.5 CP	PL: 2 SL: 0
RC-A	Reading Course A	P	9	MP (LV)		PL: 0 SL: 1

2.2.2 Area of Diversification, 27 or 36 CP.

2.2.2.1 Area of Diversification, 27 CP

K. digit	Module title	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
D-A	Diversification A	P	9	KP (LV)		PL: 1 SL: 1

K. digit	Module title	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
D-B	Diversification B	P	9	KP (LV)		PL: 1 SL: 1
AC-B	Advanced Communications B	P	9	TP (LV)	Part 1, 4.5 CP	PL: 2 SL: 0
					Part 2, 4.5 CP	

2.2.2.2 Area of Diversification, 36 CP

K. digit	Module title	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
D-A	Diversification A	P	9	KP (LV)		PL: 1 SL: 1
D-B	Diversification B	P	9	KP (LV)		PL: 1 SL: 1
AC-B	Advanced Communications B	P	9	TP (LV)	Part 1, 4.5 CP	PL: 2 SL: 0
					Part 2, 4.5 CP	
RC-B	Reading Course B	P	9	KP (LV)		PL: 0 SL: 1

2.2.3 Compulsory Elective Module, 9 CP

K. digit	Module title	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
SP-C	Specialization C	WP	9	KP (LV)		PL: 1 SL: 1
D-C	Diversification C	WP	9	KP (LV)		PL: 1 SL: 1

2.3 Application Subject, 18 CP

Before choosing an application subject, it is strongly recommended to take advantage of an advising session in the Faculty 3 at the Advisory Office – Mathematics (szmathe@uni-bremen.de) as well as a specialized advising session in the respective application subject. The task of the advising is the clarification of the respective study program, namely

- a) for students who continue an applied subject already completed in the Bachelor's program at the University of Bremen, and
- b) for students who wish to take a new applied subject with their Master's degree, and
- c) for students who have not completed their bachelor's degree at the University of Bremen and wish to start a new application subject or continue an application subject they have already completed.

For students according to letter b, the information in the BPO Mathematics on the potential application subjects can also be a relevant basis for agreeing on an individual Study Plan. The compulsory modules indicated there can also become compulsory modules for these students. In this case, the previous experience of the student or the student must be taken into account. The missing CP are then to be fulfilled through the corresponding selection of one or more compulsory elective modules from the BPO Mathematics or the MPO Mathematics.

The advising consultant typically checks whether the respective modules of the application subject are to be completed in English and in accordance to the recommended CP distribution (30 per semester, maximum plus/minus 3 CP) as well as according to the respective recommended course of study (see Appendix 1). The results of the consultation is to be documented within the framework of the individual Study Plan and this is to be submitted to the Examination Office.

2.3.1 Biology (German: Biologie), 18 CP

This application subject cannot be taken in English.

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
Öko 1	Evolution und Ökologie	Evolutionary Biology and Ecology	WP	6	TP	Evolution, 3 CP	PL: 1 SL: 0
						Introduction to Ecology, 3 CP	PL: 1 SL: 0
Öko 2	Ökologie und Biodiversität	Ecology and Biodiversity	WP	6	KP		PL: 1 SL: 1
Bio 1	Struktur und Funktion wirbelloser Tiere	Structure and Function of Invertebrate Animals	WP	6	KP		PL: 1 SL: 1
Bio 2	Zellbiologie	Biology of the cell	WP	6	KP		PL: 1 SL: 1
Bio 3	Botanik	Botany	WP	9	KP		PL: 1 SL: 1
Bio 4	Formenkenntnis	Plant and Animal Diversity	WP	6	KP		PL: 1 SL: 2
MBW 1	Biochemie	Biochemistry	WP	6	MP		PL: 1 SL: 0
MBW 2	Mikrobiologie und Genetik 2	Microbiology and Genetics 2	WP	9	TP	Microbiology, 6 CP	PL: 1 SL: 0
						Genetics, 3 CP	PL: 1 SL: 0
MBW 3	Molekulare Genetik und Molekulare Zellbiologie	Molecular Genetics and Molecular Cell Biology	WP	6	MP		PL: 1 SL: 0
Meer	Marine Lebensräume	Marine habitats	WP	3	MP		PL: 1 SL: 0
NHZ 1	Neurobiologie, Humanbiologie, Zoologie 1	Neurobiology, Human Biology and Zoology 1	WP	9	KP		PL: 1 SL: 1
Pflanzphys	Pflanzenphysiologie	Plant Physiology	WP	3	KP		PL: 1 SL: 1

2.3.2: Chemistry (German: Chemie), 18 CP

This application subject can be completed in English, but the selection is limited in this language.

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
ALC	Allgemeine Chemie	General Chemistry	WP	9	KP		PL: 2 SL: 0
PC1	Physikalische Chemie 1	Physical Chemistry 1	WP	6	KP		PL: 1 SL: 1
PC2	Physikalische Chemie 2	Physical Chemistry 2	WP	6	MP		PL: 1 SL: 0

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
AC	Anorganische Chemie	Inorganic Chemistry	WP	9	MP		PL: 1 SL: 0
ThC	Theoretische Chemie	Theoretical Chemistry	WP	9	MP		PL: 1 SL: 0
AC-F	Anorganische Festkörperchemie	Inorganic Solid State Chemistry	WP	9	KP		PL: 1 SL: 1
FO	Festkörper und Oberflächen	Solid and surfaces	WP	9	MP		PL: 1 SL: 0
MCM- SC		Solid State Synthesis and Characterization	WP	6	MP		PL: 1 SL: 0
MCM- PR		Structure Property Relationships	WP	6	KP		PL: 2 SL: 0
MCM- CM		Computational Materials Science	WP	6	KP		PL: 2 SL: 0
MCM- DA		Multiple (Large) Dataset Analysis	WP	6	KP		PL: 2 SL: 0
MCM- CR1		Research Module Chemistry I	WP	12	KP		PL: 1 SL: 1

2.3.3: Electrical Engineering (German: Elektrotechnik), 18 CP

This application subject can be completed in English, but the selection is limited in this language.

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/ W	CP	MP/TP/ KP	Allocation of the CP at TP	PL/SL (number)
GEAT	Grundlagen der der Energie- und Automatisierungstechnik	Introduction to Energy and Automation Engineering	WP	9	TP	Fundamentals of electrical power engineering, 4 CP	PL: 1 SL: 0
						Fundamentals of control engineering, 4 CP	PL: 1 SL: 0
						Introduction to automation technology, 1 CP	PL: 1 SL: 0
GIKT	Grundlagen der Informations- und Kommunikationstechnik	Introduction to Information and Communication Technology	WP	9	TP	Fundamentals of high- frequency technology, 3 CP	PL: 1 SL: 0
						Fundamentals of communications engineering, 3 CP	PL: 1 SL: 0
						Fundamentals of Information	PL: 1 SL: 0

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/ KP	Allocation of the CP at TP	PL/SL (number)
						Technology, 3 CP	
GMN	Grundlagen der Mikrosystemtechnik und Mikroelektronik	Introduction to Microsystems and Microelectronics	WP	9	TP	Fundamentals of Microsystems Engineering and Microelectronics, 6 CP	PL: 1 SL: 0
						Practical Course Fundamentals of Microsystems Engineering and Microelectronics, 3 CP	PL: 0 SL: 1
ATP	Automatisierung Technischer Prozesse	Automation Projects	WP	6	MP		PL: 1 SL: 0
CTh1(a)	Regelungstheorie 1	Control Theory 1	WP	6	MP		PL: 1 SL: 0
LRT	Praktikum Regelungstechnik	Advanced Control Lab	WP	3	MP		PL: 0 SL: 1
EAT(a)	Elektrische Antriebstechnik	Electrical Drives	WP	6	MP		PL: 1 SL: 0
Antec	Praktikum Antriebstechnik	Laboratory Electrical Drives	WP	3	MP		PL: 0 SL: 1
Paut(a)		Process Automation in Power Grids	WP	6	MP		PL: 1 SL: 0
LEA	Leistungselektronik in der Automatisierungstechnik	Power Electronics for Automation Technology	WP	6	MP		PL: 1 SL: 0
EPC(a)	Stromrichtertechnik	Electrical Power Converters	WP	6	MP		PL: 1 SL: 0
EPCL	Praktikum Stromrichtertechnik	Laboratory Electrical Power Converters	WP	3	MP		PL: 0 SL: 1
NetDy(a)	Dynamik und Stabilität in Übertragungsnetzen	Dynamics and stability in transmission grids	WP	6	MP		PL: 1 SL: 0
WEAG	Windenergieanlagen – Grundlagen	Wind Power Converters - Foundations	WP	6	MP		PL: 1 SL: 0
ADSP		Advanced Digital Signal Processing	WP	6	MP		PL: 1 SL: 0

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/ KP	Allocation of the CP at TP	PL/SL (number)
CNS(a)		Communications Networks	WP	6	KP		PL: 2 SL: 0
NetSim		Network Simulation	WP	6	MP		PL: 1 SL: 0
RFC(a)		RF Frontend Devices and Circuits	WP	6	MP		PL: 1 SL: 0
IKT1	Praktikum Informations- und Kommunikationstechnik I	Information and Communication Technology I"	WP	3	MP		PL: 0 SL: 1
IKT2	Praktikum Informations- und Kommunikationstechnik II	Information and Communication Technology II	WP	3	MP		PL: 0 SL: 1
DiTe(a)		Digital Technology	WP	6	MP		PL: 1 SL: 0
SSc(a)		Sensor Science	WP	6	MP		PL: 1 SL: 0
SAMS (a)		Sensors and Measurement Systems	WP	6	MP		PL: 1 SL: 0
DDsy	Praktikum Entwurf digitaler Systeme	Laboratory Design of Digital Systems	WP	3	MP		PL: 0 SL: 1
MiSP	Praktikum Mikrosystemtechnik	Laboratory Micorsystems	WP	3	MP		PL: 0 SL: 1
SCL		Laboratory Sensor Characterization	WP	3	MP		PL: 0 SL: 1
CAMC		Circuits and Architectures for Mobile Communication Systems	WP	6	MP		PL: 1 SL: 0
ASV(a)	Architekturen der digitalen Signalverarbeitung	Architectures for Digital Signal Processing	WP	6	MP		PL: 1 SL: 0

2.3.4: Geosciences (German: Geowissenschaften), 18 CP

This application subject can only be completed in English. An exception to this is the module "Fundamentals of Applied Geophysics".

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
BMG-EE1		Introduction to Earth Dynamics	WP	6	KP		PL: 1 SL: 1

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
BGW-PP3	Grundlagen der Angewandten Geophysik	Principles of Applied Geophysics	WP	6	KP		PL: 2 SL: 0
BGW-GD1		Geodynamic and Plate Tectonic Principles	WP	6	MP		PL: 1 SL: 0
BGW-GD3		Geodynamic Modeling	WP	6	KP		PL: 2 SL: 2
BMG-GI1		Research Data Management and Analysis	WP	6	MP		PL: 1 SL: 0
BMG-GI2		Data Visualization	WP	6	MP		PL: 1 SL: 0
BMG-GI3		Earth-System Modeling and Data Analysis	WP	6	MP		PL: 1 SL: 0
MAG-GL1		Glaciology I	WP	6	MP		PL: 1 SL: 0
MAG-GL2		Glaciology II	WP	6	KP		PL: 2 SL: 0
MAG-GH1		Hazard - Risk Assessment	WP	6	MP		PL: 1 SL: 0
MAG-GH2		Environmental Hazards	WP	6	MP		PL: 1 SL: 0
MAG-RE1		Renewable Energy in the Earth System	WP	6	KP		PL: 2 SL: 0
MAG-RE2		Renewable Energy Resources II - Offshore Wind Energy	WP	6	MP		PL: 1 SL: 0
MMG-CC1		Climate Change I: Fundamentals	WP	6	MP		PL: 1 SL: 0
MMG-CC2		Climate Change II: Models and Data	WP	6	MP		PL: 1 SL: 0

2.3.5: Computer Science (German: Informatik), 18 CP

This application subject can be completed in English, but the selection is limited in this language.

2.3.5a Compulsory Modules, 6 CP

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
IBAP	Aufbau Praktische Informatik	Practical Computer Science (Intermediate Level)	P	6	MP		PL: 1 SL: 0

2.3.5b Compulsory Elective Modules, 12 CP

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
IBGP-PI2	Praktische Informatik 2	Practical Computer Science 2	WP	6	KP		PL: 2 SL: 0
IBGP-PI3	Praktische Informatik 3	Practical Computer Science 3	WP	6	KP		PL: 2 SL: 0
INF-5	Technische Grundlagen der Informatik	Technical Foundations of Computer Science	WP	6	MP		PL: 1 SL: 0
IBGP-THI2	Theoretische Informatik 2	Theoretical Computer Science 2	WP	6	MP		PL: 1 SL: 0
IBAT	Aufbau Theoretische Informatik	Theoretical Computer Science (Intermediate Level)	WP	6	MP		PL: 1 SL: 0
IBVA	Vertiefung Angewandte Informatik	Advanced Applied Computer Science	WP	6	MP		PL: 1 SL: 0
IBVP	Vertiefung Praktische Informatik	Advanced Practical Computer Science	WP	6	MP		PL: 1 SL: 0
IBVT	Vertiefung Theoretische Informatik	Advanced Theoretical Computer Science	WP	6	MP		PL: 1 SL: 0
IMK-SQ	Kern (SQ)	Core (SQ)	WP	6	MP		PL: 1 SL: 0
IMK-AI	Kern (AI)	Core (AI)	WP	6	MP		PL: 1 SL: 0
IMK-DMI	Kern (DMI)	Core (DMI)	WP	6	MP		PL: 1 SL: 0
IMK-VMC	Kern (VMC)	Core (VMC)	WP	6	MP		PL: 1 SL: 0
IMA-SQ	Aufbau Informatik (SQ)	Computer Science (SQ)	WP	6	MP		PL: 1 SL: 0
IMA-AI	Aufbau Informatik (AI)	Computer Science (AI)	WP	6	MP		PL: 1 SL: 0
IMA-DMI	Aufbau Informatik (DMI)	Computer Science (DMI)	WP	6	MP		PL: 1 SL: 0
IMA-VMC	Aufbau Informatik (VMC)	Computer Science (VMC)	WP	6	MP		PL: 1 SL: 0
IMAP-SQ	Aufbau Praktische Informatik (SQ)	Practical Computer Science (SQ)	WP	6	MP		PL: 1 SL: 0
IMAP-AI	Aufbau Praktische Informatik (AI)	Practical Computer Science (AI)	WP	6	MP		PL: 1 SL: 0
IMAP-DMI	Aufbau Praktische	Practical Computer Science (DMI)	WP	6	MP		PL: 1 SL: 0

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WPW	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
	Informatik (DMI)						
IMAP-VMC	Aufbau Praktische Informatik (VMC)	Practical Computer Science (VMC)	WP	6	MP		PL: 1 SL: 0
IMVP-SQ	Vertiefung Praktische Informatik (SQ)	Advanced Practical Computer Science (SQ)	WP	6	MP		PL: 1 SL: 0
IMVP-AI	Vertiefung Praktische Informatik (AI)	Advanced Practical Computer Science (AI)	WP	6	MP		PL: 1 SL: 0
IMVP-DMI	Vertiefung Praktische Informatik (DMI)	Advanced Practical Computer Science (DMI)	WP	6	MP		PL: 1 SL: 0
IMVP-VMC	Vertiefung Praktische Informatik (VMC)	Advanced Practical Computer Science (VMC)	WP	6	MP		PL: 1 SL: 0
IMVT-SQ	Vertiefung Theoretische Informatik (SQ)	Advanced Theoretical Computer Science (SQ)	WP	6	MP		PL: 1 SL: 0
IMVT-AI	Vertiefung Theoretische Informatik (AI)	Advanced Theoretical Computer Science (AI)	WP	6	MP		PL: 1 SL: 0
IMVT-DMI	Vertiefung Theoretische Informatik (DMI)	Advanced Theoretical Computer Science (DMI)	WP	6	MP		PL: 1 SL: 0
IMVT-VMC	Vertiefung Theoretische Informatik (VMC)	Advanced Theoretical Computer Science (VMC)	WP	6	MP		PL: 1 SL: 0
IMVA-SQ	Vertiefung Angewandte Informatik (SQ)	Advanced Applied Computer Science (SQ)	WP	6	MP		PL: 1 SL: 0
IMVA-AI	Vertiefung Angewandte Informatik (AI)	Advanced Applied Computer Science (AI)	WP	6	MP		PL: 1 SL: 0
IMVA-DMI	Vertiefung Angewandte Informatik (DMI)	Advanced Applied Computer Science (DMI)	WP	6	MP		PL: 1 SL: 0
IMVA-VMC	Vertiefung Angewandte Informatik (VMC)	Advanced Applied Computer Science (VMC)	WP	6	MP		PL: 1 SL: 0

2.3.6: Philosophy (German: Philosophie), 18 CP

The application subject can only be taken in German and not in English.

K. digit	Module title, German	Module title, English translation	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
MM1	Theoretische Philosophie	Theoretical Philosophy	WP	18	KP		PL: 1 SL: 3
MM2	Praktische Philosophie	Practical Philosophy	WP	18	KP		PL: 1 SL: 3
MM3	Philosophie in den Wissenschaften	Philosophy in the Sciences	WP	18	KP		PL: 2 SL: 3
MM4	Philosophie und Gesellschaft	Philosophy and Society	WP	18	KP		PL: 2 SL: 3

2.3.7: Physics (German: Physik), 18 CP

This application subject can be completed in English, but the selection is limited in this language.

K. digit	Module title, German	Module title, English translation	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
TP3a	Theoretische Physik 3	Theoretical Physics 3	WP	9	TP	Examination, 6 CP	PL: 1 SL: 0
						Course work, 3 CP	PL: 0 SL: 1
TP4a	Theoretische Physik 4	Theoretical Physics 4	WP	9	TP	Examination, 6 CP	PL: 1 SL: 0
						Course work, 3 CP	PL: 0 SL: 1
TP5a	Theoretische Physik 5	Theoretical Physics 5	WP	6	TP	Examination, 3 CP	PL: 1 SL: 0
						Course work, 3 CP	PL: 0 SL: 1
EP4a	Experimentalphysik 4	Experimental Physics 4	WP	6	TP	Examination, 3 CP	PL: 1 SL: 0
						Course work, 3 CP	PL: 0 SL: 1
GP4	Grundpraktikum 4	Introductory Laboratory Course 4	WP	3	KP		PL: 0 SL: 2
EP5a	Experimentalphysik 5	Experimental Physics 5	WP	9	KP		PL: 1 SL: 1
EP6	Experimentalphysik 6	Experimental Physics 6	WP	3	MP		PL: 1 SL: 0
ExpPhyAM	Fortgeschrittene Experimentalphysik – Atom & Molekülphysik		WP	9	KP		PL: 1 SL: 1
ExpPhyFKP	Fortgeschrittene Experimentalphysik – Festkörperphysik		WP	9	KP		PL: 1 SL: 1
FP	Fortgeschrittenenpraktikum		WP	9	MP		PL: 0 SL: 1
TheoPhys	Fortgeschrittene Theoretische Physik		WP	12	KP		PL: 1 SL: 1
WPAO	Angewandte Optik		WP	12	KP		PL: 1

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/W/P/W	C P	MP/TP/K P	Allocation of the CP at TP	PL/SL (number)
							SL: 1
WP AP	Astrophysik		WP	12	KP		PL: 1 SL: 1
WP BP	Biophysik		WP	12	KP		PL: 1 SL: 1
WP CMS	Computerunterstützte Materialwissenschaften		WP	12	KP		PL: 1 SL: 1
WP FKP	Festkörperphysik		WP	12	KP		PL: 1 SL: 1
WP UP	Umweltphysik		WP	12	KP		PL: 1 SL: 1
AMMDA		Applied Mathematical Methods and Data Analysis	WP	6	MP		PL: 1 SL: 0
AtPhy		Atmospheric Physics	WP	6	MP		PL: 1 SL: 0
Dyn1		Dynamics I	WP	6	MP		PL: 1 SL: 0
Dyn2		Dynamics II	WP	3	KP		PL: 1 SL: 1
PhyO1		Physical Oceanography I	WP	6	MP		PL: 1 SL: 0
CliS1		Climate System I	WP	3	KP		PL: 1 SL: 1
MES		Modeling of the Earth System	WP	3	MP		PL: 1 SL: 0
MeTe		Measurement Techniques	WP	6	KP		PL: 1 SL: 1
RemS		Remote Sensing	WP	3	KP		PL: 1 SL: 1
CTh1(a)		Control Theory I	WP	6	MP		PL: 1 SL: 0
SpEl(a)		Space Electronics	WP	6	MP		PL: 1 SL: 0
SEM		Science and Exploration Missions	WP	3	MP		PL: 1 SL: 0
AtPhy		Atmospheric Physics	WP	6	MP		PL: 1 SL: 0
ComSp-		Communication Technologies for Space	WP	6	MP		PL: 1 SL: 0
RSOC		Remote Sensing of Ocean and Cryosphere	WP	6	KP		PL: 1 SL: 1
AtCM1(a)		Atmospheric Chemistry Modelling: Part 1	WP	3	MP		PL: 1 SL: 0
CliS1		Climate System 1	WP	3	KP		PL: 1 SL: 1

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
SAMS(a)		Sensors and Measurement Systems	WP	6	MP		PL: 1 SL: 0
GNSS		The Global Navigation Satellite System	WP	3	MP		PL: 1 SL: 0
CNSp		Communication Networks for Space	WP	3	KP		PL: 1 SL: 1
01-29-03 LSpa1		Space Lab, Part 1	WP	3	KP		PL: 1 SL: 1
LSpa2		Space Lab, Part 2	WP	3	MP		PL: 1 SL: 0
DIP		Digital Image Processing	WP	3	KP		PL: 1 SL: 1
AtSp		Atmospheric Spectroscopy	WP	3	MP		PL: 1 SL: 0
GG		Geodesy and Gravity	WP	3	MP		PL: 1 SL: 0
DiTe(a)		Digital Technology	WP	6	MP		PL: 1 SL: 0
RFC(a)		RF Frontend Devices and Circuits	WP	6	MP		PL: 1 SL: 0

2.3.8: Production Engineering (German: Produktionstechnik), 18 CP

This technical application subject can only be completed in German.

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
M11- BM1- AM	Basismodul 1 – Allgemeiner Maschinenbau		WP	6	TP	Fluid mechanics, 3 CP Higher strength theory and structural mechanics in lightweight design, 3 CP	PL: 2 SL: 0
M11- BM1- ES	Basismodul 1 – Energiesysteme	Foundation module 1 - Energy Systems	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11- BM1- FT	Basismodul 1 – Fertigungstechnik	Foundation module 1 - Manufacturing Technology	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11- BM1- IM	Basismodul 1 – Industrielles Management	Foundation module 1 - Industrial Engineering	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
M11-BM1-LT	Basismodul 1 – Luftfahrttechnik	Foundation module 1 - Aviation Engineering	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11-BM1-MW	Basismodul 1 – Materialwissenschaften	Foundation module 1 - Materials Science	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11-BM1-VT	Basismodul 1 – Verfahrenstechnik	Foundation module 1 - Process Engineering	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11-BM2-AM	Basismodul 2 – Allgemeiner Maschinenbau	Foundation module 2 - Mechanical Engineering	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11-BM2-ES	Basismodul 2 – Energiesysteme	Foundation module 2 - Energy Systems	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11-BM2-FT	Basismodul 2 – Fertigungstechnik	Foundation module 2 - Manufacturing Technology	WP	6	MP		PL: 1 SL: 0
M11-BM2-IM	Basismodul 2 – Industrielles Management	Foundation module 2 - Industrial Engineering	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11-BM2-LT	Basismodul 2 – Luftfahrttechnik	Foundation module 2 - Aviation Engineering	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11-BM2-MW	Basismodul 2 – Materialwissenschaften	Foundation module 2 - Materials Science	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11-BM2-VT	Basismodul 2 – Verfahrenstechnik	Foundation module 2 - Process Engineering	WP	6	TP	1. PL 3 CP 2. PL 3 CP	PL: 2 SL: 0
M11-VM1-AM	Vertiefungsmodul 1 – Allgemeiner Maschinenbau	Advanced module 1 - Mechanical Engineering	WP	9	TP	1. PL 3 CP 2. PL 3 CP 3. PL 3 CP	PL: 3 SL: 0
M11-VM1-ES	Vertiefungsmodul 1 – Energiesysteme	Advanced module 1 - Energy Systems	WP	9	TP	1. PL 3 CP 2. PL 3 CP 3. PL 3 CP	PL: 3 SL: 0
M11-VM1-FT	Vertiefungsmodul 1 – Fertigungstechnik	Advanced module 1 - Manufacturing Technology	WP	9	TP	1. PL 3 CP 2. PL 3 CP 3. PL 3 CP	PL: 3 SL: 0
M11-VM1-IM	Vertiefungsmodul 1 – Industrielles Management	Advanced module 1 - Industrial Engineering	WP	9	TP	1. PL 3 CP 2. PL 6 CP	PL: 2 SL: 0
M11-VM1-LT	Vertiefungsmodul 1 – Luftfahrttechnik	Advanced module 1 - Aviation Engineering	WP	9	TP	1. PL 3 CP 2. PL 3 CP 3. PL 3 CP	PL: 3 SL: 0

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
M11-VM1-MW	Vertiefungsmodul 1 – Materialwissenschaften	Advanced module 1 - Materials Science	WP	9	TP	1. PL 3 CP 2. PL 3 CP 3. PL 3 CP	PL: 3 SL: 0
M11-VM1-VT	Vertiefungsmodul 1 – Verfahrenstechnik	Advanced module 1 - Process Engineering	WP	9	TP	1. PL 3 CP 2. PL 3 CP 3. PL 3 CP	PL: 3 SL: 0
M11-VM2-AM	Vertiefungsmodul 2 – Allgemeiner Maschinenbau	Advanced module 2 - Mechanical Engineering	WP	9	TP	1. PL 3 CP 2. PL 3 CP 3. PL 3 CP	PL: 3 SL: 0
M11-VM2-ES	Vertiefungsmodul 2 – Energiesysteme	Advanced module 2 - Energy Systems	WP	9	TP	1. PL 3 CP 2. PL 3 CP 3. PL 3 CP	PL: 3 SL: 0

2.3.9: Economics (German: Wirtschaftswissenschaft), 18 CP

This application subject can be completed in English, but the selection is limited in this language.

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	CP	MP/TP/KP	Allocation of the CP at TP	PL/SL (number)
EVWL	Einführung in die VWL	Introduction to Economics	WP	6	MP		PL: 1 SL: 0
ABWL I	Rechnungswesen und Abschluss	Accounting & Accounts	WP	9	MP		PL: 1 SL: 0
ABWL II	Marketing	Marketing	WP	6	MP		PL: 1 SL: 0
ABWL III	Unternehmensbesteuerung	Company Taxation	WP	9	MP		PL: 1 SL: 0
ABWL IV	Produktion und Logistik	Production & Logistics	WP	6	MP		PL: 1 SL: 0
AVWL I	Mikroökonomie	Microeconomics	WP	6	MP		PL: 1 SL: 0
AVWL II	Makroökonomie	Macroeconomics	WP	9	MP		PL: 1 SL: 0
M37-1-01	Modul 1 Gründungs- und Mittelstands-Management	Module 1 Entrepreneurship and SME Management	WP	6	MP		PL: 1 SL: 0
M37-1-02	Modul 2 Gründungs- und Mittelstands-Management	Module 2 Entrepreneurship and SME Management	WP	6	MP		PL: 1 SL: 0
M37-1-03	Modul 3 Gründungs- und Mittelstands-Management	Module 3 Entrepreneurship and SME Management	WP	6	MP		PL: 1 SL: 0
M37-2-01	Modul 1 Marketing und Markenmanagement	Module 1 Marketing and Brand Management	WP	6	MP		PL: 1 SL: 0
M37-2-02	Modul 2 Marketing und Markenmanagement	Module 2 Marketing and	WP	6	MP		PL: 1 SL: 0

K. digit	Module title, <i>German</i>	Module title, <i>English translation</i>	Module type P/WP/W	C P	MP/TP/K P	Allocation of the CP at TP	PL/SL (number)
		Brand Management					
M37-2-03	Modul 3 Marketing und Markenmanagement	Module 3 Marketing and Brand Management	WP	6	MP		PL: 1 SL: 0
M37-3-01	Modul 1 Internationales Management	Module 1 International Management	WP	6	MP		PL: 1 SL: 0
M37-3-02	Modul 2 Internationales Management	Module 2 International Management	WP	6	MP		PL: 1 SL: 0
M37-3-03	Modul 3 Internationales Management	Module 3 International Management	WP	6	MP		PL: 1 SL: 0
M37-4-01	Modul 1 Finanzwirtschaft	Module 1 Finance	WP	6	MP		PL: 1 SL: 0
M37-4-02	Modul 2 Finanzwirtschaft	Module 2 Finance	WP	6	MP		PL: 1 SL: 0
M37-4-03	Modul 3 Finanzwirtschaft	Module 3 Finance	WP	6	MP		PL: 1 SL: 0
M37-5-01	Modul 1 Rechnungswesen und Controlling	Module 1 Accounting	WP	6	MP		PL: 1 SL: 0
M37-5-02	Modul 2 Rechnungswesen und Controlling	Module 2 Accounting	WP	6	MP		PL: 1 SL: 0
M37-5-03	Modul 3 Rechnungswesen und Controlling	Module 3 Accounting	WP	6	MP		PL: 1 SL: 0
M37-6-01	Modul 1 Betriebswirtschaftliche Steuerlehre	Module 1 Business Taxation	WP	6	MP		PL: 1 SL: 0
M37-6-02	Modul 2 Betriebswirtschaftliche Steuerlehre	Module 2 Business Taxation	WP	6	MP		PL: 1 SL: 0
M37-6-03	Modul 3 Betriebswirtschaftliche Steuerlehre	Module 3 Business Taxation	WP	6	MP		PL: 1 SL: 0
M37-7-01	Modul 1 Logistik	Module 1 Logistics	WP	6	MP		PL: 1 SL: 0
M37-7-02	Modul 2 Logistik	Module 2 Logistics	WP	6	MP		PL: 1 SL: 0
M37-7-03	Modul 3 Logistik	Module 3 Logistics	WP	6	MP		PL: 1 SL: 0
M37-8-01	Modul 1 Innovationsökonomik	Module 1 Innovation Economics	WP	6	MP		PL: 1 SL: 0
M37-8-02	Modul 2 Innovationsökonomik	Module 2 Innovation Economics	WP	6	MP		PL: 1 SL: 0
M37-8-03	Modul 3 Innovationsökonomik	Module 3 Innovation Economics	WP	6	MP		PL: 1 SL: 0