

Annex SFB

Studienfachbeschreibung (subject description, SFB) for the subject Computational Mathematics as a Bachelor's with 1 major with the degree "Bachelor of Science" (180 ECTS credits)

Responsible: Institute of Mathematics

Examination regulations version: 2009

Abbreviations used: Course types: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **V** = lecture

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: **A** = thesis, **LV** = course(s), **PL** = assessment(s), **TN** = participants, **VL** = prerequisite(s)

Conventions for the modules in this SFB: Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Information on assessment procedures: Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should a module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with the general regulations governing the degree subject described in this module catalogue:

ASPO2007

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

10-Aug-2009 (2009-62)

15-Mar-2010 (2010-10)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.

Every module will be described using the following form:

Abbreviation	Module title						
	ECTS		Duration	(in semesters)	Method of grading		Module level
	Courses		To be specified in the form X (y) with course type X abbreviated as specified above and number of weekly contact hours y				
	Method of assessment						
	Only after successful completion of		if applicable				
	Other prerequisites		if applicable				
	Participants and allocation of places		if applicable				
	Additional information		if applicable				
	Referred to in LPO I		if applicable (examination regulations for teaching-degree programmes)				

Compulsory Courses (88 ECTS credits)							
10-M-PPM-082-m01	Propaedeutics of Mathematics						
	ECTS	2	Duration	1 semester	Method of grading	(not) successfully completed	Modul level undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)					
	Method of assessment	project assignments (type and expenditure of time to be specified by the lecturer at the beginning of the course) Assessment offered: once a year, winter semester Language of assessment: German, English if agreed upon with the examiner					
	other prerequisites	Admission prerequisite to assessment: regular attendance of courses (as specified at the beginning of the course).					
10-M-NM1-082-m01	Numerical Mathematics 1						
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)					
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner					
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.					
Referred to in LPO I	§ 73 (1) 5. Mathematik Angewandte Mathematik						

10-M-ANA-082- m01	Analysis							
	ECTS	17	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	<p>This module comprises 3 module components. Information on courses will be listed separately for each module component.</p> <ul style="list-style-type: none"> • 10-M-ANA-1-082: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-ANA-2-082: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-ANA-P-082: M (no information on SWS (weekly contact hours) and course language available) 						
	Method of assessment	<p>Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.</p> <p>Assessment in module component 10-M-ANA-1-082: Analysis 1 Analysis 1</p> <ul style="list-style-type: none"> • 8 ECTS, Method of grading: (not) successfully completed • a) written examination (approx. 90 minutes; usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Modules 10-M-VKM and 10-M-PPM are recommended. <p>Assessment in module component 10-M-ANA-2-082: Analysis 2 Analysis 2</p> <ul style="list-style-type: none"> • 7 ECTS, Method of grading: (not) successfully completed • a) written examination (approx. 90 minutes; usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Modules 10-M-VKM and 10-M-PPM are recommended; in addition, module component 10-M-ANA-1 is recommended for module component 10-M-ANA-2. <p>Assessment in module component 10-M-ANA-P-082: Examination in Analysis</p> <ul style="list-style-type: none"> • 2 ECTS, Method of grading: numerical grade • oral examination of one candidate each (approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Only after successful completion of module components: Successful completion of any one of the module components 10-M-ANA-1, 10-M-ANL-1, 10-M-ANA-2, 10-M-ANL-2 is a prerequisite for participation in module component 10-M-ANA-P. 						
	other prerequisites	By way of exception, additional prerequisites are listed in the section on assessments.						
Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis							

10-M-LNA-082- mo1	Linear Algebra							
	ECTS	14	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	<p>This module comprises 3 module components. Information on courses will be listed separately for each module component.</p> <ul style="list-style-type: none"> • 10-M-LNA-1-082: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-LNA-2-082: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-LNA-P-082: M (no information on SWS (weekly contact hours) and course language available) 						
	Method of assessment	<p>Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.</p> <p>Assessment in module component 10-M-LNA-1-082: Linear Algebra 1 Linear Algebra 1</p> <ul style="list-style-type: none"> • 7 ECTS, Method of grading: (not) successfully completed • written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. <p>Assessment in module component 10-M-LNA-2-082: Linear Algebra 2 Linear Algebra 2</p> <ul style="list-style-type: none"> • 5 ECTS, Method of grading: (not) successfully completed • written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. <p>Assessment in module component 10-M-LNA-P-082: Examination in Linear Algebra</p> <ul style="list-style-type: none"> • 2 ECTS, Method of grading: numerical grade • oral examination of one candidate each (approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Only after successful completion of module components: Successful completion of module component 10-M-LNA-1 or module component 10-M-LNA-2 is a prerequisite for participation in module component 10-M-LNA-P. 						
	other prerequisites	By way of exception, additional prerequisites are listed in the section on assessments.						
Referred to in LPO I	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie							

10-M-NM2-082-m01	Numerical Mathematics 2							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
Referred to in LPO I	§ 73 (1) 5. Mathematik Angewandte Mathematik							

10-M-DFT-o82-mo1	Ordinary Differential Equations and Complex Analysis						
ECTS	13	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate
Courses	<p>This module comprises 3 module components. Information on courses will be listed separately for each module component.</p> <ul style="list-style-type: none"> • 10-M-DFT-1-o82: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-DFT-2-o82: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-DFT-P-o82: M (no information on SWS (weekly contact hours) and course language available) 						
Method of assessment	<p>Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.</p> <p>Assessment in module component 10-M-DFT-1-o82: Ordinary Differential Equations Ordinary Differential Equations</p> <ul style="list-style-type: none"> • 4 ECTS, Method of grading: (not) successfully completed • written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. <p>Assessment in module component 10-M-DFT-2-o82: Introduction to Complex Analysis Introduction to Complex Analysis</p> <ul style="list-style-type: none"> • 7 ECTS, Method of grading: (not) successfully completed • written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. <p>Assessment in module component 10-M-DFT-P-o82: Examination in Ordinary Differential Equations and Complex Analysis</p> <ul style="list-style-type: none"> • 2 ECTS, Method of grading: numerical grade • oral examination of one candidate each (approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Only after successful completion of module components: Successful completion of module component 10-M-DFT-1 or module component 10-M-DFT-2 is a prerequisite for participation in module component 10-M-DFT-P. 						
other prerequisites	By way of exception, additional prerequisites are listed in the section on assessments.						
Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis						

10-M-VAN-082-mo1	Advanced Analysis							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	Ü + V (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis							
10-M-GAP-092-mo1	Geometric Analysis and Partial Differential Equations							
	ECTS	13	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	This module comprises 3 module components. Information on courses will be listed separately for each module component. <ul style="list-style-type: none"> • 10-M-GAP-1-092: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-GAP-2-092: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-GAP-P-092: M (no information on SWS (weekly contact hours) and course language available) 						
	Method of assessment	<p>Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.</p> <p>Assessment in module component 10-M-GAP-1-092: Geometric Analysis Geometric Analysis</p> <ul style="list-style-type: none"> • 7 ECTS, Method of grading: (not) successfully completed • a) written examination (approx. 90 minutes; usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Modules 10-M-ANA and 10-M-LNA are recommended. <p>Assessment in module component 10-M-GAP-2-092: Partial Differential Equations Partial Differential Equations</p> <ul style="list-style-type: none"> • 4 ECTS, Method of grading: (not) successfully completed • a) written examination (approx. 90 minutes; usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Modules 10-M-ANA and 10-M-LNA are recommended. <p>Assessment in module component 10-M-GAP-P-092: Examination in Geometric Analysis and Partial Differential Equations</p> <ul style="list-style-type: none"> • 2 ECTS, Method of grading: numerical grade • oral examination of one candidate each (approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Only after successful completion of module components: 10-M-GAP-1 or 10-M-GAP-2 • Other prerequisites: Modules 10-M-ANA and 10-M-LNA are recommended. 						
	other prerequisites	By way of exception, additional prerequisites are listed in the section on assessments.						

10-M-MWR-092-m01	Modelling and Computational Science							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) written examination (approx. 90 minutes; usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes)						
Compulsory Electives (62 ECTS credits)								
Mathematics 1 (8 ECTS credits)								
Students must complete modules worth no less than 8 ECTS credits; however, of the two modules 10-M-EZT and 10-M-ZAL no more than one may be taken.								
10-M-EDM-072-m01	Introduction to Discrete Mathematics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
Referred to in LPO I	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie							
10-M-FAN-072-m01	Introduction to Functional Analysis							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis							

10-M-ORS-072-m01	Operations Research							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
Referred to in LPO I	§ 73 (1) 5. Mathematik Angewandte Mathematik							
10-M-EZT-072-m01	Introduction to Number Theory							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) written examination (90 minutes; usually chosen) or b) oral examination of one candidate each (20 minutes) or c) oral examination in groups (groups of 2, 30 minutes)						
10-M-NLD-072-m01	Non-Linear Dynamics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis							

10-M-GEO-082- mo1	Introduction to Geometry							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	<p>This module has 2 components; information on courses listed separately for each component.</p> <ul style="list-style-type: none"> • 10-M-GEO-1-082: V + Ü (no information on language and number of weekly contact hours available) • 10-M-GEO-2-082: V + Ü (no information on language and number of weekly contact hours available) 						
	Method of assessment	<p>This module has the following 2 assessment components. To pass the module as a whole students must pass one of the two assessment components.</p> <p>Assessment component to module component 10-M-GEO-1-082: Einführung in die Projektive Geometrie</p> <ul style="list-style-type: none"> • 8 ECTS credits, method of grading: numerical grade • written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: English, German if agreed upon with the examiner • Other prerequisites: Admission prerequisite to assessment: successful completion of approx. 50% of exercises. Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. <p>Assessment component to module component 10-M-GEO-2-082: Einführung in die Differentialgeometrie</p> <ul style="list-style-type: none"> • 8 ECTS credits, method of grading: numerical grade • written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: English, German if agreed upon with the examiner • Other prerequisites: Admission prerequisite to assessment: successful completion of approx. 50% of exercises. Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. 						
	other prerequisites	By way of exception, additional prerequisites are listed in the section on assessments.						
Referred to in LPO I	§ 73 (1) 4. Mathematik Geometrie							

10-M-ZAL-o82-mo1	Number Theory and Algebra							
	ECTS	13	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	<p>This module comprises 3 module components. Information on courses will be listed separately for each module component.</p> <ul style="list-style-type: none"> • 10-M-ZAL-1-o82: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-ZAL-2-o82: V + Ü (no information on SWS (weekly contact hours) and course language available) • 10-M-ZAL-P-o82: M (no information on SWS (weekly contact hours) and course language available) 						
	Method of assessment	<p>Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.</p> <p>Assessment in module component 10-M-ZAL-1-o82: Introduction to Number Theory Introduction to Number Theory</p> <ul style="list-style-type: none"> • 4 ECTS, Method of grading: (not) successfully completed • written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. <p>Assessment in module component 10-M-ZAL-2-o82: Introduction to Algebra Introduction to Algebra</p> <ul style="list-style-type: none"> • 7 ECTS, Method of grading: (not) successfully completed • written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. <p>Assessment in module component 10-M-ZAL-P-o82: Examination in Number Theory and Algebra</p> <ul style="list-style-type: none"> • 2 ECTS, Method of grading: numerical grade • oral examination of one candidate each (approx. 30 minutes) • Language of assessment: German, English if agreed upon with the examiner • Only after successful completion of module components: Successful completion of module component 10-M-ZAL-1 or module component 10-M-ZAL-2 is a prerequisite for participation in module component 10-M-ZAL-P. 						
	other prerequisites	By way of exception, additional prerequisites are listed in the section on assessments.						
Referred to in LPO I	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie							

10-M-ST1-082-mo1	Stochastics 1							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
	Referred to in LPO I	§ 73 (1) 3. Mathematik Stochastik						
10-M-ST2-082-mo1	Stochastics 2							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
	Referred to in LPO I	§ 73 (1) 3. Mathematik Stochastik						
Mathematics 2 (4 ECTS credits)								
10-M-RCS-082-mo1	Reading Course Stochastics							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)						
10-M-RCD-082-mo1	Reading Course Discrete Mathematics							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)						
10-M-RCF-082-mo1	Reading Course Functional Analysis							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)						

10-M-RCO-082-mo1	Reading Course Operations Research							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)						
10-M-RCY-082-mo1	Reading Course Dynamical Systems							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)						
10-M-RCP-082-mo1	Reading Course Optimisation							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)						
Mathematics 3 (5 ECTS credits)								
10-M-BSA-072-mo1	Seminar in Analysis							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis						
10-M-BSL-072-mo1	Seminar in Linear Algebra							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie						
10-M-BSE-072-mo1	Seminar in Algebra							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie						

10-M-BSG-072-m01	Seminar in Geometry							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 4. Mathematik Geometrie						
10-M-BSZ-072-m01	Seminar in Number Theory							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie						
10-M-BSW-072-m01	Seminar in Ordinary Differential Equations							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis						
10-M-BSC-072-m01	Seminar in Complex Analysis							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis						
10-M-BSN-072-m01	Seminar in Numerical Mathematics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 5. Mathematik Angewandte Mathematik						

10-M-BSS-072-mo1	Seminar in Stochastics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
Referred to in LPO I	§ 73 (1) 3. Mathematik Stochastik							
10-M-BSF-072-mo1	Seminar in Functional Analysis							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
10-M-BSO-072-mo1	Seminar in Operation Research							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
10-M-BSD-072-mo1	Seminar in Discrete Mathematics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
Method of assessment	talk (approx. 60 minutes)							
Application-oriented Subject (35 ECTS credits)								
Students must take one of the application-oriented subjects (Biologie (Biology), Chemie (Chemistry), Informatik (Computer Science) and Physik (Physics)) with the specified mandatory courses and/or mandatory electives.								
Application-oriented Subject Chemistry (35 ECTS credits)								
Application-oriented Subject Chemistry Compulsory Courses (26 ECTS credits)								
11-EFNF-072-mo1	Introduction to Physics for Students of Non-physics-related Minor Subjects							
	ECTS	7	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + V (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						
Participants and allocation of places	Only as part of pool of general key skills (ASQ): 10 places. Places will be allocated by lot.							
08-CM1-072-mo1	General Chemistry for Mathematics Majors							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V (no information on SWS (weekly contact hours) and course language available)						
Method of assessment	written examination (approx. 60 minutes)							

o8-PC1-092-m01	Physical Chemistry 1							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü + V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written examinations: 60 or 90 minutes each; 3 written examinations: 60 minutes each) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes)						
	other prerequisites	Admission prerequisite to assessment: successful completion of exercises in the respective classes as specified at the beginning of the course (usually 70% of exercises to be successfully completed) as well as regular attendance of exercises (usually a maximum of 2 incidents of unexcused absence).						
o8-OC1-092-m01	Organic Chemistry 1							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written examinations: 60 or 90 minutes each; 3 written examinations: 60 minutes each) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes)						
	other prerequisites	Admission prerequisite to assessment: successful completion of exercises in the respective classes as specified at the beginning of the course (usually 70% of exercises to be successfully completed) as well as regular attendance of exercises (usually a maximum of 2 incidents of unexcused absence).						
	Referred to in LPO I	§ 62 (1) 2. Chemie "Organische und Bioorganische Chemie"						
Application-oriented Subject Chemistry Compulsory Electives (9 ECTS credits)								
o8-OC2-092-m01	Organic Chemistry 2							
	ECTS	9	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü + V (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) 1 to 3 written examinations (1 written examination: 90 minutes; 2 written examinations: 60 or 90 minutes each; 3 written examinations: 60 minutes each) or b) oral examination in groups (groups of 2, approx. 30 minutes)						
o8-TC-092-m01	Theoretical Models in Chemistry							
	ECTS	3	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written examinations: approx. 60 or 90 minutes each; 3 written examinations: approx. 60 minutes each) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes)						
	other prerequisites	Admission prerequisite to assessment: successful completion of exercises in the respective classes as specified at the beginning of the course (usually 70% of exercises to be successfully completed) as well as regular attendance of exercises (usually a maximum of 2 incidents of unexcused absence).						

08-PC3-092-m01	Physical and Theoretical Chemistry 3: Symmetry and Quantum Chemistry							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü + V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) 1 to 3 written examinations (1 written examination: 90 minutes; 2 written examinations: 60 or 90 minutes each; 3 written examinations: 60 minutes each) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes)						
other prerequisites	Admission prerequisite to assessment: successful completion of exercises in the respective classes as specified at the beginning of the course (usually 70% of exercises to be successfully completed) as well as regular attendance of exercises (usually a maximum of 2 incidents of unexcused absence).							
Application-oriented Subject Computer Science (35 ECTS credits)								
Students are recommended to select one of the following four combinations: (a) 10-I-RAL, 10-I-ST, 10-I-AR, 10-I-RAK, 10-I-RK, (b) 10-I-ADS, 10-I-ST, 10-I-PP, 10-I-SWP, (c) 10-I-ADS, 10-I-ST, 10-I-DB, 10-I-WMS, 10-I-OOP, (d) 10-I-ADS, 10-I-TI, 10-I-LOG, 10-I-GT, 10-I-KT								
Application-oriented Subject Computer Science Compulsory Electives (35 ECTS credits)								
10-I-IÜ-072-m01	Information transmission							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						
10-I-RAL-072-m01	Digital computer systems							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						
10-I-TI-072-m01	Theoretical informatics							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						
10-I-ADS-072-m01	Algorithm and data structures							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						
10-I-AR-072-m01	Automation and control technology							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes)						

10-I-DB-072-m01	Data bases							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (50 minutes) or oral examination (one candidate each: 15 minutes, groups of 2: 20 minutes, groups of 3: 25 minutes)						
10-I-GT-072-m01	Graphtheoretical concepts and algorithms							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						
10-I-KT-072-m01	Theory of complexity							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						
10-I-LOG-072-m01	Logic for informatics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (50 minutes) or oral examination (one candidate each: 15 minutes, groups of 2: 20 minutes, groups of 3: 25 minutes)						
10-I-OOP-072-m01	Object oriented programming							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (50 minutes) or oral examination (one candidate each: 15 minutes, groups of 2: 20 minutes, groups of 3: 25 minutes)						
10-I-PP-072-m01	Practical course in programming							
	ECTS	9	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate
	Courses	P (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	completion of programming exercises (expenditure of time as specified) and final examination: written examination (60 to 90 minutes) or oral examination (one candidate each: 10 to 15 minutes, groups of 2: 20 minutes, groups of 3: 30 minutes)						
10-I-RAK-072-m01	Computer architecture							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						

10-I-RK-072-m01	Computer networks and communication systems							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						
10-I-ST-072-m01	Software technology							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						
10-I-SWP-072-m01	Practical course in software							
	ECTS	10	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate
	Courses	P (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	periodic presentations on project progress with regard to detailing problem specifications, the corresponding solution components (software) and the documentation of these; if project is completed in groups, proof of contributions made by the individual student required; software and project documentation as specified in assignment, final presentation (10 to 15 minutes per group)						
10-I-WMS-072-m01	Knowledge management systems and data mining							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (80 minutes) or oral examination (one candidate each: 20 minutes, groups of 2: 30 minutes, groups of 3: 40 minutes)						
Application-oriented Subject Physics (35 ECTS credits)								
If consent is obtained from the examination committee, modules 11-ENNF1 and 11-ENNF2 (7 ECTS credits each) may be replaced with modules 11-E1 and 11-E2 (8 ECTS credits each).								
Application-oriented Subject Physics Compulsory Courses (16 ECTS credits)								
11-ENNF1-062-m01	Introduction to Physics Part 1 for students of Physics Related Minor Subjects							
	ECTS	7	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						
	Participants and allocation of places	Only as part of pool of general key skills (ASQ): 20 places. Places will be allocated by lot.						
11-ENNF2-062-m01	Introduction to Physics Part 2 for students of Physics Related Minor Subjects							
	ECTS	7	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						
	Participants and allocation of places	Only as part of pool of general key skills (ASQ): 20 places. Places will be allocated by lot.						

11-PFR-072-m01	Measurements and Data Analysis							
	ECTS	2	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						
Application-oriented Subject Physics Compulsory Electives 1 (3 ECTS credits)								
11-PNNF-062-m01	Physics Laboratory Course for students of Physics Related Minor Subjects							
	ECTS	3	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate
	Courses	P (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) oral test (approx. 15 minutes) during experiment and b) ungraded written examination (approx. 90 minutes)						
	Participants and allocation of places	Only as part of pool of general key skills (ASQ): 15 places. Places will be allocated by lot.						
11-PG-IAF-072-m01	Practical Course							
	ECTS	4	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate
	Courses	Beispiele aus Mechanik, Wärmelehre und Elektrik (Examples from Mechanics, Thermodynamics and Electricity, BAM): P (2 weekly contact hours) Klassische Physik (Classical Physics, KLP): P (2 weekly contact hours) Elektrizitätslehre und Schaltungen (Electricity and Circuits, ELS): P (2 weekly contact hours) Wellenoptik (Physical Optics, WOP): P (2 weekly contact hours) Atom- und Kernphysik (Atomic and Nuclear Physics, AKP): P (2 weekly contact hours) Computer und Messtechnik (Computers and Measurement Technology, CMT): P (2 weekly contact hours)						
	Method of assessment	This module has the following assessment components 1. Lab course in part 1: a) Preparing, performing and evaluating the experiments will be considered successfully completed if a Testat (exam) is passed. b) Talk (with discussion) to test the students' understanding of the physics-related contents of the course (approx. 30 minutes). 2. Lab course in part 2: a) Preparing, performing and evaluating the experiments will be considered successfully completed if a Testat (exam) is passed. b) Talk (with discussion) to test the students' understanding of the physics-related contents of the course (approx. 30 minutes). Students must register for assessment components 1 and 2 online (registration deadline to be announced). Students will be offered one opportunity to retake element a) and/or element b). To pass an assessment component, they must pass both elements a) and b). To pass this module, students must successfully complete two out of the six courses. Students must attend BAM, KLP or ELS courses prior to attending WOP, AKP or CMT courses. To pass this module, students must pass both assessment component 1 and assessment component 2.						
	other prerequisites	Module 11-PFR recommended.						
Application-oriented Subject Physics Compulsory Electives 2 (16 ECTS credits)								
11-E3-072-m01	Experimental Physics 3 (Optics, Quantum Phenomena, Introduction Atomic Physics)							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						

11-T1-072-m01	Theoretical Physics 1 (Theoretical Mechanics)							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						
11-T2-072-m01	Theoretical Physics 2 (Theoretical Electrostatics and Electrodynamics)							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						
11-T3-072-m01	Theoretical Physics 3 (Theoretical Quantum Mechanics)							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						
11-T4-072-m01	Theoretical Physics 4 (Theoretical Thermodynamics and Statistics)							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						
11-E5-082-m01	Experimental Physics 5 (Introduction to Solid State Physics)							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 120 minutes)						

Application-oriented Subject Biology (35 ECTS credits)

There is a restricted number of places in the application-oriented subject Biologie (Biology). Only those students that have submitted a written application and have obtained prior approval from the subject coordinator (Studienfachverantwortliche(r)) will be able to attend courses offered as part of modules from this application-oriented subject. A decision as to what applicants will be granted approval will be made as follows: applicants will be ranked by lottery and the places offered by the Faculty of Biology in the respective academic year will be allocated according to this ranking. Approval will cover in particular the courses offered as part of modules / module compon-

ents from the area of mandatory courses. Approval may be withdrawn if students spent two consecutive semesters without completing any modules / module components from the application-oriented subject Biologie (Biology). In the case of students changing degree subjects, approval will become void.

Application-oriented Subject Biology Compulsory Courses (10 ECTS credits)

07-2A2GN-V-072-m01	Genetics, Neurobiology, Behaviour							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	<p>This module comprises 3 module components. Information on courses will be listed separately for each module component.</p> <ul style="list-style-type: none"> 07-2A2GNV-1G-072: V + Ü (no information on SWS (weekly contact hours) and course language available) 07-2A2GNV-2N-072: V + Ü (no information on SWS (weekly contact hours) and course language available) 07-2A2GNV-3V-072: V + Ü (no information on SWS (weekly contact hours) and course language available) 						
	Method of assessment	<p>Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.</p> <p>Assessment in module component 07-2A2GNV-1G-072: Basic Genetics Basic Genetics</p> <ul style="list-style-type: none"> 2 ECTS, Method of grading: numerical grade written examination (approx. 30 minutes) Other prerequisites: Admission prerequisite to assessment: regular attendance of exercises and successful completion of the respective exercises as specified at the beginning of the course. <p>Assessment in module component 07-2A2GNV-2N-072: Basic Neurobiology Basic Neurobiology</p> <ul style="list-style-type: none"> 2 ECTS, Method of grading: numerical grade written examination (approx. 30 minutes) Other prerequisites: Admission prerequisite to assessment: regular attendance of exercises and successful completion of the respective exercises as specified at the beginning of the course. <p>Assessment in module component 07-2A2GNV-3V-072: Behavioural Biology Behavioural Biology</p> <ul style="list-style-type: none"> 2 ECTS, Method of grading: numerical grade written examination (approx. 30 minutes, word problems and/or multiple choice questions) Other prerequisites: Admission prerequisite to assessment: regular attendance of exercises and successful completion of the respective exercises as specified at the beginning of the course. 						
	other prerequisites	By way of exception, additional prerequisites are listed in the section on assessments.						
	Participants and allocation of places	Only as part of "spezielles Studienangebot": 10 places.						
07-1A1Z-072-m01	Structure and Function of Cells							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (60 minutes)						
	other prerequisites	Admission prerequisite to assessment: regular attendance of exercises and successful completion of the respective exercises as specified at the beginning of the course.						

Application-oriented Subject Biology Compulsory Electives (25 ECTS credits)

Students must take two out of the following three modules: 07-1A1E, 07-1A1P, 07-1A1T. When taking up their studies, students are highly recommended to consult with the course advisory service Biology that will help them choose appropriate modules from the remaining modules.

07-3A3BI-072-m01	Bioinformatics							
	ECTS	2	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	This module comprises 2 module components. Information on courses will be listed separately for each module component. <ul style="list-style-type: none"> 07-3A3BI-1B-072: V (no information on SWS (weekly contact hours) and course language available) 07-3A3BI-2B-072: S (no information on SWS (weekly contact hours) and course language available) 						
	Method of assessment	Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments. Assessment in module component 07-3A3BI-1B-072: Bioinformatics (Lecture) <ul style="list-style-type: none"> 1 ECTS, Method of grading: numerical grade written examination (approx. 20 minutes) Assessment in module component 07-3A3BI-2B-072: Bioinformatics (Seminar) <ul style="list-style-type: none"> 1 ECTS, Method of grading: (not) successfully completed term paper (approx. 5 to 10 pages) 						
	Participants and allocation of places	Only as part of Biochemistry Master's: 5 places. Places will be allocated by lot.						
07-3A3OE-072-m01	Ecology of plants and animals							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	This module comprises 2 module components. Information on courses will be listed separately for each module component. <ul style="list-style-type: none"> 07-3A3OE-1T-072: V + Ü (no information on SWS (weekly contact hours) and course language available) 07-3A3OE-2P-072: V + Ü (no information on SWS (weekly contact hours) and course language available) 						
	Method of assessment	Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments. Assessment in module component 07-3A3OE-1T-072: Ecology of Animals (Lecture and Practice) Ecology of Animals (Lecture and Practice) <ul style="list-style-type: none"> 3 ECTS, Method of grading: numerical grade written examination (45 minutes) Assessment in module component 07-3A3OE-2P-072: Ecology of Plant (Lecture and Practice) Ecology of Plant (Lecture and Practice) <ul style="list-style-type: none"> 3 ECTS, Method of grading: numerical grade written examination (60 minutes) 						
	Participants and allocation of places							
07-4BFMZ4-092-m01	Bioinformatics for advanced students							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	log (approx. 10 to 20 pages)						

07-4BFN-VO3-092-m01	Ecology of Animals for advanced students							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (60 minutes)						
07-4BF-PS2-092-m01	Biophysics - Basic course							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (60 minutes)						
07-4S1M-Z6-092-m01	Special Bioinformatics I							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	log (approx. 10 to 20 pages)						
07-4S1N-VO1-092-m01	Neurobiology I							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	P (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	log (approx. 10 to 20 pages)						
07-4S1N-VO5-092-m01	Ecology of populations							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	This module comprises 2 module components. Information on courses will be listed separately for each module component. <ul style="list-style-type: none"> 07-4S1NVO5-1PO-092: V + Ü (no information on SWS (weekly contact hours) and course language available) 07-4S1NVO5-2PO-092: S (no information on SWS (weekly contact hours) and course language available) 						
	Method of assessment	Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments. <p>Assessment in module component 07-4S1NVO5-1PO-092: Basic Ecology of Populations (Lecture, Practice) Basic Ecology of Populations (Lecture, Practice)</p> <ul style="list-style-type: none"> 4 ECTS, Method of grading: numerical grade written examination (45 minutes) <p>Assessment in module component 07-4S1NVO5-2PO-092: Ecology of Populations (Seminar)</p> <ul style="list-style-type: none"> 1 ECTS, Method of grading: (not) successfully completed presentation (approx. 20 to 30 minutes) 						
07-4S1PS1-092-m01	Molecular modelling - From DNA to protein							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	computerised practical examination (4 hours)						

07-5S2M- Z3-092-m01	Specific Bioinformatics II							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) written examination (approx. 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups (groups of up to 3 candidates, approx. 60 minutes) or e) presentation (approx. 20 to 30 minutes)						
07-1A1E-072-m01	Evolution - Basics and Principles (Lecture and Practice)							
	ECTS	1	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (30 minutes)						
07-1A1T-072-m01	The Animal Kingdom							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 60 minutes)						
	other prerequisites	Admission prerequisite to assessment: regular attendance of and participation in exercises as well as successful completion of the respective exercises as specified at the beginning of the course.						
07-1A1P-072-m01	The Plant Kingdom							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 60 minutes)						
	other prerequisites	Admission prerequisite to assessment: regular attendance of exercises as well as successful completion of the respective exercises.						
07-3A3GE-072- m01	Genetics							
	ECTS	2	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (30 minutes)						
Thesis (10 ECTS credits)								
10-M-BAC-092- m01	Thesis Computational Mathematics (Bachelor Thesis)							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	(no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written thesis Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Registration for assessment: as specified.						

Subject-specific Key Skills (15 ECTS credits)							
Key Skills 1 (Compulsory) (10 ECTS credits)							
Students must take the following modules: 10-M-VKM and 10-M-BAKC as well as either (10-M-PRG and 10-M-COM) or (10-MPRGk and 10-M-COMg) or (10-M-PRG and 10-M-COMg).							
10-M-COMg-o82-m01	Computational Mathematics, advanced						
	ECTS	4	Duration	1 semester	Method of grading	(not) successfully completed	Modul level undergraduate
	Courses	Ü + V (no information on SWS (weekly contact hours) and course language available)					
	Method of assessment	project in the form of programming exercises (type and expenditure of time to be specified by the lecturer at the beginning of the course) Assessment offered: once a year, summer semester Language of assessment: German, English if agreed upon with the examiner					
	other prerequisites	Admission prerequisite to assessment: regular attendance of exercises (attendance monitored, a maximum of one incident of unexcused absence).					
Referred to in LPO I	§ 73 (1) 5. Mathematik Angewandte Mathematik						
10-M-PRGk-o82-m01	Programming course for students of Mathematics and other subjects, simple						
	ECTS	2	Duration	1 semester	Method of grading	(not) successfully completed	Modul level undergraduate
	Courses	P (no information on SWS (weekly contact hours) and course language available)					
	Method of assessment	project in the form of programming exercises (type and expenditure of time to be specified by the lecturer at the beginning of the course) Language of assessment: German, English if agreed upon with the examiner					
	other prerequisites	Admission prerequisite to assessment: regular attendance (attendance monitored, a maximum of one incident of unexcused absence).					
Referred to in LPO I	§ 73 (1) 5. Mathematik Angewandte Mathematik						
10-M-VKM-o82-m01	Preparatory Course Mathematics						
	ECTS	1	Duration	1 semester	Method of grading	(not) successfully completed	Modul level undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)					
	Method of assessment	project assignments (type and expenditure of time to be specified by the lecturer at the beginning of the course) Assessment offered: once a year, winter semester Language of assessment: German, English if agreed upon with the examiner					
	other prerequisites	Admission prerequisite to assessment: regular attendance of courses (as specified at the beginning of the course).					
10-M-PRG-o82-m01	Programming course for students of Mathematics and other subjects						
	ECTS	3	Duration	1 semester	Method of grading	(not) successfully completed	Modul level undergraduate
	Courses	P (no information on SWS (weekly contact hours) and course language available)					
	Method of assessment	project in the form of programming exercises (as specified at the beginning of the course) Language of assessment: German, English if agreed upon with the examiner					
	other prerequisites	Admission prerequisite to assessment: regular attendance (attendance monitored, a maximum of one incident of unexcused absence).					
Referred to in LPO I	§ 73 (1) 5. Mathematik Angewandte Mathematik						

10-M-COM-082-m01	Computeroriented Mathematics							
	ECTS	3	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	project in the form of programming exercises (as specified at the beginning of the course) Assessment offered: once a year, summer semester Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Admission prerequisite to assessment: regular attendance of exercises (attendance monitored, a maximum of one incident of unexcused absence).						
Referred to in LPO I	§ 73 (1) 5. Mathematik Angewandte Mathematik							
10-M-BAKC-092-m01	Defense of Bachelor Thesis in Computational Mathematics							
	ECTS	3	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
Method of assessment	talk (approx. 15 minutes) with subsequent discussion (approx. 15 minutes)							
Key Skills 2 (Elective) (10 ECTS credits)								
Students may not select modules they already took in the area of mandatory electives.								
10-M-BSA-072-m01	Seminar in Analysis							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis							
10-M-BSL-072-m01	Seminar in Linear Algebra							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
Referred to in LPO I	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie							
10-M-BSE-072-m01	Seminar in Algebra							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
Referred to in LPO I	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie							

10-M-BSG-072-m01	Seminar in Geometry							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 4. Mathematik Geometrie						
10-M-BSC-072-m01	Seminar in Complex Analysis							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes) Assessment offered: in the semester in which the course is offered Language of assessment: German, English if agreed upon with the examiner						
	Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis						
10-M-BSF-072-m01	Seminar in Functional Analysis							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes)						
10-M-BSD-072-m01	Seminar in Discrete Mathematics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	S (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	talk (approx. 60 minutes)						
10-M-EDM-072-m01	Introduction to Discrete Mathematics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
	Referred to in LPO I	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie						

10-M-FAN-072-mo1	Introduction to Functional Analysis							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
	Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis						
10-M-ORS-072-mo1	Operations Research							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
	Referred to in LPO I	§ 73 (1) 5. Mathematik Angewandte Mathematik						
10-M-EZT-072-mo1	Introduction to Number Theory							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) written examination (90 minutes; usually chosen) or b) oral examination of one candidate each (20 minutes) or c) oral examination in groups (groups of 2, 30 minutes)						

10-M-NLD-072-mo1	Non-Linear Dynamics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
Referred to in LPO I	§ 73 (1) 1. Mathematik Analysis							
10-M-ST2-082-mo1	Stochastics 2							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
	other prerequisites	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.						
Referred to in LPO I	§ 73 (1) 3. Mathematik Stochastik							
10-M-RCS-082-mo1	Reading Course Stochastics							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)							
10-M-RCD-082-mo1	Reading Course Discrete Mathematics							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)							
10-M-RCF-082-mo1	Reading Course Functional Analysis							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)							

10-M-RCO-082-m01	Reading Course Operations Research							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)						
10-M-RCY-082-m01	Reading Course Dynamical Systems							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)						
10-M-RCP-082-m01	Reading Course Optimisation							
	ECTS	4	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	A (no information on SWS (weekly contact hours) and course language available)						
	Method of assessment	a) talk (approx. 30 minutes) or b) written elaboration (approx. 5 to 10 pages)						