

## **Annex SFB**

## Studienfachbeschreibung (subject description, SFB) for the subject Mathematics as a minor in a Bachelor's degree programme (60 ECTS credits)

Responsible: Institute of Mathematics

Examination regulations version: 2008

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:

## ASP02007

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

19-Mar-2009 (2008-43)

24-Mar-2010 (2010-12)

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 sp	ecified in the form X	(y) with course type 2	Cabbreviated as specified abo	ve and number of we	ekly contact hours y			
	Method of as	ssessm	ent	_							
	Only after su completion of		ıl if applic	fapplicable							
	Other prereq	uisites	if applic	if applicable							
	Participants and allocation of places		ocati- if applic	if applicable							
	Additional in	nformati	ion if applic	able							
	Referred to in LPO I		if applic	if applicable (examination regulations for teaching-degree programmes)							

<b>Compulsory Cours</b>	ses (34 ECTS cre	edits)									
10-M-PPM-082-	Propaedeutic	s of Mathe	matics	5							
mo1	ECTS 2	Duratio	n	1 semester	Method of g	rading (	not) successfully	completed	Modul level	undergraduate	
	Courses		V + Ü	(no information	on SWS (weekly c	ontact h	ours) and course	language av	ailable)		
	Method of ass	sessment	Asses	sment offered:	(type and expendi once a year, winte ent: German, Engl	r semest	er .	·	urer at the beg	inning of the course)	
	other prerequ	isites	Admis	Admission prerequisite to assessment: regular attendance of courses (as specified at the beginning of the course).							
10-M-ANA-082-	Analysis		•								
mo1	ECTS 17	Duratio	n	2 semester	Method of g	rading r	numerical grade		Modul level	undergraduate	
	Courses		•	10-M-ANA-1-08 10-M-ANA-2-08 10-M-ANA-P-08	2: V + Ü (no inforn 32: V + Ü (no inforn 32: M (no informat	mation or mation or ion on S	n SWS (weekly com n SWS (weekly co WS (weekly conta	ntact hours) ntact hours) ct hours) an	and course lar and course la d course langu	nguage available) lage available)	
	Method of as:	sessment	Asses  Asses	ssment in modul 8 ECTS, Metho a) written exan 20 minutes) or Language of as Other prerequi 7 ECTS, Metho a) written exan 20 minutes) or Language of as Other prerequi ANA-1 is recom ssment in modul 2 ECTS, Metho oral examinatio Language of as Only after succe	le component 10-N d of grading: (not) nination (approx. c) oral examination ssessment: Germa sites: Modules 10-N d of grading: (not) nination (approx. c) oral examination ssessment: Germa sites: Modules 10-N d of grading: (not) nination (approx. c) oral examination ssessment: Germa sites: Modules 10-N d of grading: nume on of one candidat ssessment: Germa ssessment: Germa	M-ANA-1- success 90 minute on in grou in, Englis -M-VKM a M-ANA-2- success 90 minute on in grou in, Englis o-M-VKM ile compe M-ANA-P- erical gra te each ( in, Englis of modul	module will require <b>082:</b> Analysis 1 A fully completed tes; usually chose ups (groups of 2, 4) hif agreed upon variety and 10-M-PPM are to 10-M-PPM are to 10-M-PPM are to 10-M-PPM and 10-M-PPM and 10-M-PPM and 10-M-PPM and 10-M-ANA-2 to 10	re successfurally sis 1  en) or b) ora approx. 30 rewith the examenda approx. 30 rewith the example sis 2  en) or b) ora approx. 30 rewith the exame recommendation in Analysis es)  with the example sis approx. 30 rewith the example sis approx.	I examination on inutes) miner ded. I examination ninutes) miner ended; in additional miner ended; in addition of any miner mpletion of any	of one candidate each (approx.  of one candidate each (approx.  tion, module component 10-M- y one of the module components n module component 10-M-ANA-	
	other prerequ	isites	By wa	y of exception, a	additional prerequ	uisites ar	e listed in the sec	tion on asse	essments.		
	Referred to in	LPO I	§ 73 (	1) 1. Mathematil	< Analysis						

10-M-LNA-082-	Linear Algebra											
mo1	ECTS 14	Duratio	n 2 semester	Method of grading numerical	grade	Modul level	undergraduate					
	Courses		<ul> <li>10-M-LNA-1-082</li> <li>10-M-LNA-2-082</li> <li>10-M-LNA-P-082</li> </ul>	his module comprises 3 module components. Information on courses will be listed separately for each module component.  • 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 as	sessment		dule comprises the assessments i essful completion of the module w								
			<ul> <li>Assessment in module component 10-M-LNA-1-082: Linear Algebra 1 Linear Algebra 1</li> <li>7 ECTS, Method of grading: (not) successfully completed</li> <li>written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, 30 minutes)</li> <li>Language of assessment: German, English if agreed upon with the examiner</li> <li>Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will students about the respective details at the beginning of the course. Registration for the course will be con a declaration of will to seek admission to assessment. If students have obtained the qualification for admis assessment over the course of the semester, the lecturer will put their registration for assessment into effect dents who meet all prerequisites will be admitted to assessment in the current or in the subsequent semestassessment at a later date, students will have to obtain the qualification for admission to assessment anew.</li> <li>Assessment in module component 10-M-LNA-2-082: Linear Algebra 2 Linear Algebra 2</li> <li>5 ECTS, Method of grading: (not) successfully completed</li> <li>written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, 30 minutes)</li> </ul>									
			Other prerequis students about a declaration of assessment ove dents who mee assessment at a Assessment in module  2 ECTS, Method oral examinatio Language of ass Only after succe	sessment: German, English if agree ites: Certain prerequisites must be the respective details at the begin will to seek admission to assess or the course of the semester, the tall prerequisites will be admitted a later date, students will have to o component 10-M-LNA-P-082: Exa of grading: numerical grade of one candidate each (approx. 3 sessment: German, English if agree essful completion of module component 10-M-LNA-2 is a prerequisite	met to qualify for admining of the course. Renent. If students have lecturer will put their to assessment in the btain the qualification mination in Linear Algorometrics with the examonents: Successful comments:	nission to asse Registration for e obtained the r registration for e current or in n for admissio gebra niner ompletion of r	r the course will be considered e qualification for admission to or assessment into effect. Stuthe subsequent semester. For n to assessment anew.					
	other prerequ	uisites	By way of exception, additional prerequisites are listed in the section on assessments.									
	Referred to in			Lineare Algebra, Algebra und Elem								
			10,5 (=) =:a			-						

10-M-VKM-082-	Prepara	atory Co	ourse Mat	hemati	cs			-			
mo1	ECTS	1	Duration	1	1 semester	Method of grading (not) successfully completed	Modul level	undergraduate			
	Course	S S	•	V + Ü	(no information on	SWS (weekly contact hours) and course language av	ailable)				
	Method	d of ass	essment	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 p	rerequi	sites	Admis	dmission prerequisite to assessment: regular attendance of courses (as specified at the beginning of the course).						
Compulsory Electiv	es (26 E	CTS cre	dits)								
10-M-ODE-082-	Ordina	ry Diffe	rential Eq	uations	5						
mo1	ECTS	5	Duration	ı	1 semester	Method of grading   numerical grade	Modul level	undergraduate			
	Courses			V + Ü	(no information on	SWS (weekly contact hours) and course language av	ailable)				
	Method of assessment			exami	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.							
10-M-BSA-072-	Semina	ar in Ana	alysis								
mo1	ECTS	5	Duration	ı	1 semester	Method of grading   numerical grade	Modul level	undergraduate			
	Course	S		S (no	information on SW:	S (weekly contact hours) and course language availa	ble)				
	Method	d of ass	essment	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							
	Referre	d to in I	LPO I	§ 73 (1) 1. Mathematik Analysis							
10-M-BSL-072-m01	Semina	ar in Lin	ear Algeb	ra							
	ECTS	5	Duration	1	1 semester	Method of grading   numerical grade	Modul level	undergraduate			
	Course	S		S (no	information on SW:	S (weekly contact hours) and course language availa	ble)				
	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 (	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie						

10-M-BSE-072-	Semina	r in Alg	gebra								
mo1	ECTS	5	Duratio	า	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses	5		S (no	information on SWS	(weekly contact hours) and course language	available)				
	Method	l of ass	essment	Asses		ne semester in which the course is offered German, English if agreed upon with the exam	niner				
	Referre	d to in I	LPO I		-	neare Algebra, Algebra und Elemente der Zahle					
10-M-BSG-072-	Semina	r in Ge	ometry								
mo1	ECTS	5	Duration	<u> </u>	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses	5		S (no	information on SWS	(weekly contact hours) and course language a	available)				
	Method of assessment		Asses	alk (approx. 60 minutes) ssessment offered: in the semester in which the course is offered anguage of assessment: German, English if agreed upon with the examiner							
	Referre	d to in I	LPO I	§ 73 (	3 (1) 4. Mathematik Geometrie						
10-M-BSZ-072-	Semina	r in Nu	mber The	ory							
mo1	ECTS 5 Duratio			1	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses	5		S (no	information on SWS	$\mathbf{S}$ (weekly contact hours) and course language $\mathbf{a}$	available)				
	Method of assessment			Asses	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 (	§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie						
10-M-BSW-072-	Seminar in Ordinary Differential Equations										
mo1	ECTS	5	Duration	า	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses	5		S (no	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							
	Referre	d to in I	LPO I	§ 73 (	1) 1. Mathematik An	alysis					
10-M-BSC-072-	Semina	r in Co	mplex Ana	alysis							
mo1	ECTS	5	Duratio	1	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							
	Referre	d to in I	LPO I	§ 73 (1) 1. Mathematik Analysis							

10-M-BSN-072-	Semina	ar in Nun	nerical M	athem	atics						
mo1	ECTS	5	Duration	ı	1 semester	Method of grading   numerical grade	Modul level	undergraduate			
	Course	S		S (no	information on SWS	(weekly contact hours) and course language avail	able)				
	Method	d of asse	essment	Asses		ne semester in which the course is offered German, English if agreed upon with the examiner					
	Referred to in LPO I		§ 73 (	§ 73 (1) 5. Mathematik Angewandte Mathematik							
10-M-BSS-072-	Semina	ar in Sto	chastics								
mo1	ECTS	5	Duration	ı	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses			S (no	information on SWS	(weekly contact hours) and course language avail	able)				
	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							
	Referre	d to in L	PO I	§ 73 (	1) 3. Mathematik Sto	ochastik	,				
10-M-BSF-072-m01	Seminar in Functional Analysis										
	ECTS	5	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	S		S (no information on SWS (weekly contact hours) and course language available)							
	Method	d of asse	essment	talk (approx. 60 minutes)							
10-M-BSO-072-	Semina	ar in Ope	eration Re	esearcl	n						
m01	ECTS	5	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	S		S (no information on SWS (weekly contact hours) and course language available)							
	Method of assessment			talk (approx. 60 minutes)							
10-M-BSD-072-	Semina	ar in Disc	crete Mat	hemat	ics	:s					
mo1	ECTS 5 Duratio		ı	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Course	S		S (no information on SWS (weekly contact hours) and course language available)							
	Method	d of asse	essment	talk (approx. 60 minutes)							

10-M-EDM-072-	Introduction	Introduction to Discrete Mathematics										
mo1	ECTS 5	Duratio	n 1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses	<del></del> ;	V + Ü (no information	on SWS (weekly contac	t hours) and course lan	iguage available)						
	Method of as	ssessment	examination of one ca		20 minutes) or an oral (	examination in groups (g	ion can be replaced by an oral roups of 2, approx. 30 minutes)					
	other prereq	uisites	tive details at the beg on to assessment. If s the lecturer will put th sessment in the curre	inning of the course. Restudents have obtained neir registration for asse	egistration for the cours the qualification for ad essment into effect. Stu	e will be considered a de mission to assessment o dents who meet all prere	form students about the respec- eclaration of will to seek admissi- ever the course of the semester, quisites will be admitted to as- ents will have to obtain the quali-					
	Referred to i	n LPO I	§ 73 (1) 2. Mathemati	k Lineare Algebra, Algeb	ora und Elemente der Za	ahlentheorie						
10-M-FAN-072-m01	Introduction	to Function	nal Analysis									
	ECTS 5	Duratio	n 1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses		V + Ü (no information	on SWS (weekly contac	t hours) and course lan	iguage available)						
	Method of as	ssessment	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) canguage of assessment: German, English if agreed upon with the examiner									
	other prereq	uisites	tive details at the beg on to assessment. If s the lecturer will put th sessment in the curre	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 i	n LPO I	§ 73 (1) 1. Mathematil	c Analysis		·	<del>-</del>					
10-M-ORS-072-	Operations I	Research										
mo1	ECTS 5	Duratio			numerical grade	Modul level	undergraduate					
	Courses			on SWS (weekly contac								
			examination of one ca Language of assessm	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 prereq		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 i	n LPO I	§ 73 (1) 5. Mathematil	k Angewandte Mathema	ntik							

10-M-EZT-072-m01	Introdu	ction to	Number	Theory	, ,				-			
	ECTS	5	Duration	ı	1 semester	Method of gradin	g numerical grade	Modul level	undergraduate			
	Courses	S		V + Ü	(no information o	n SWS (weekly conta	ct hours) and course language a	vailable)				
	Method	d of asse	essment		written examination (90 minutes; usually chosen) or b) oral examination of one candidate each (20 minutes) or c) oral exmination in groups (groups of 2, 30 minutes)							
10-M-NLD-072-	Non-Lin	near Dyı	namics									
mo1	ECTS	5	Duration	ı	1 semester	Method of gradin	g numerical grade	Modul level	undergraduate			
	Courses			V + Ü	(no information o	n SWS (weekly conta	ct hours) and course language a	vailable)				
	Method	l of asse	essment	exami	vritten 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) anguage 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.								
	Referre	d to in L	_PO I	§ 73 (1) 1. Mathematik Analysis								
10-M-COMg-082-	Computational Mathematics, advanced											
mo1	ECTS	4	Duration	•	1 semester		g (not) successfully completed		undergraduate			
	Courses	S		Ü + V	(no information o	n SWS (weekly conta	ct hours) and course language a	vailable)	_			
				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								
C				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 A	Angewandte Mathem	atik					

10-M-GEO-082-	Introdu	iction to	Geomet	'n							
mo1	ECTS	8	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		This module has 2 components; information on courses listed separately for each component.  • 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	d of ass	essment		nodule has the foll sment component		components. To pass the modu	ile as a whole st	udents must pass one of the two		
				Assessment component to module component 10-M-GEO-1-082: Einführung in die Projektive Geometrie  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.  Assessment component to module component 10-M-GEO-2-082: Einführung in die Differentialgeometrie  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							
	other p	reregui	sites	By wa	-		cation for admission to assess are listed in the section on ass	-			
	Referre				1) 4. Mathematik G						

10-M-PRGk-082-	Progran	Programming course for students of Mathematics and other subjects, simple										
mo1	ECTS	2	Duration	ı	1 semester	Method of grading (	(not) successfully completed	Modul level	undergraduate			
	Courses	S		P (no	(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 course)  Language of assessment: German, English if agreed upon with the examiner									y the lecturer at the beginning of			
	other p	rerequis		Admis absen		assessment: regular	attendance (attendance moni	tored, a maximı	um of one incident of unexcused			
	Referre	d to in L	PO I	§ 73 (	ı) 5. Mathematik Ang	gewandte Mathematik	<					

10-M-ZAL-082-m01	Number Theory	y and Alge	ebra										
	ECTS 13	Duration	2 semester	Method of grading n	umerical grade	Modul level	undergraduate						
	Courses		<ul><li>10-M-ZAL-1-082:</li><li>10-M-ZAL-2-082:</li><li>10-M-ZAL-P-082:</li></ul>	<ul> <li>is module comprises 3 module components. Information on courses will be listed separately for each module componed 10-M-ZAL-1-082: V + Ü (no information on SWS (weekly contact hours) and course language available)</li> <li>10-M-ZAL-2-082: V + Ü (no information on SWS (weekly contact hours) and course language available)</li> <li>10-M-ZAL-P-082: M (no information on SWS (weekly contact hours) and course language available)</li> </ul>									
	Method of asse		Assessment in this mod stated otherwise, success that dotherwise, success that dotherwise, success that dotherwise, success that does not be a seen to state of the state of the success that does not be a seen to see the success that does not be a seen to see the success that does not be a seen to see that does not be a seen that does not be a	dule comprises the assest essful completion of the respective details at will to seek admission (approx. 90 minutes); of component (approx. 90 minutes); of one candidate each (approx. 90 minutes); of one candidate each (approx. 90 minutes); of component (approx. 90 minutes); of grading: (not) successfion (approx. 90 minutes); of one candidate each (approx. 91 minutes); of grading: numerical gr	sments in the individual monodule will require success  p82: Introduction to Number fully completed if announced by the lecture approx. 20 minutes) or an other individual monodule will require success approx. 20 minutes) or an other individual monodule in the deginning of the course of assessment. If students his ster, the lecturer will put the admitted to assessment in mave to obtain the qualification of the course of a secondule if announced by the lecture approx. 20 minutes) or an other individual monodule in the deginning of the course of assessment. If students his ster, the lecturer will put the admitted to assessment in the admitted to assessment in the qualification of the course of assessment in the proposed in the qualification of the course of assessment in the qualification of the course of assessment in the qualification of the course of the proposed in the qualification of the course of the proposed in the qualification of the proposed in the proposed in the proposed in the qualification of the proposed in the propose	odule component ful completion of r Theory Introducer, the written exact or al examination was examiner dmission to asset examined the current or in the current or in the written exact or al examination was examiner dmission to asset examination was examiner dmission to asset examiner dmission for admission for admission for admission to asset examiner dmission for admission for admiss	tion to Number Theory mination can be replaced by an in groups (groups of 2, approx.  ssment. The lecturer will inform the course will be considered equalification for admission to or assessment into effect. Stuthe subsequent semester. For n to assessment anew.  Algebra mination can be replaced by an in groups (groups of 2, approx.  ssment. The lecturer will inform the course will be considered equalification for admission to or assessment into effect. Stuthe subsequent semester. For n to assessment into effect. Stuthe subsequent semester. For n to assessment anew.						
			module compone	ent 10-M-ZAL-2 is a prere	quisite for participation in r	nodule compone							
· -	other prerequis		<u> </u>		e listed in the section on as								
	Referred to in L	PO I	§ 73 (1) 2. Mathematik I	ineare Algebra, Algebra	und Elemente der Zahlenth	eorie							

<u>_</u>	Numer	ical Mat	hematics	1							
mo1	ECTS	8	Duration		1 semester	Method of grading			Modul level	undergraduate	
	Course	S		V + Ü	(no information on	SWS (weekly contac	t hours) and course la	anguage avai	ilable)		
	Method	d of ass	essment	exam	ination of one cand	didate each (approx.		ıl examinatio		tion can be replaced by an oral roups of 2, approx. 30 minutes)	
	other p	rerequi	sites	tive on to the le sessi	Rertain 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, he 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 qualication for admission to assessment anew.						
	Referre	d to in I	PO I	§ 73	(1) 5. Mathematik A	ngewandte Mathema	tik				
10-M-ST1-082-m01	Stocha	stics 1									
	ECTS	8	Duration	1	1 semester	Method of grading	numerical grade		Modul level	undergraduate	
	Course	S		V + Ü	(no information on	SWS (weekly contac	t hours) and course la	anguage avai	ilable)		
	Method of assessment			exam	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			tive on to the le sessi	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.						
	Referre	d to in I	PO I	§ 73 (1) 3. Mathematik Stochastik							
10-M-NM2-082-	Numer	ical Mat	hematics	2							
mo1	ECTS	5	Duration		1 semester	Method of grading			Modul level	undergraduate	
	Course		_				t hours) and course la				
				exam Lang	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			tive on to the le sessi ficati	letails at the beginr assessment. If studecturer will put their ment in the current on for admission to	ning of the course. Re dents have obtained r registration for asse or in the subsequent o assessment anew.	gistration for the cour the qualification for a ssment into effect. St semester. For assess	rse will be co admission to tudents who	onsidered a de assessment c meet all prere	nform students about the respec- eclaration of will to seek admissi- over the course of the semester, quisites will be admitted to as- ents will have to obtain the quali-	
	Referre	d to in I	PO I	§ 73	(1) 5. Mathematik A	ngewandte Mathema	tik				

10-M-ST2-082-m01	Stochastics 2									
	ECTS 5 Duration		1	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V + Ü (no information on SWS (weekly contact hours) and course language available)						
				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.						
	Referre	d to in L	PO I	§ 73 (	ı) 3. Mathematik S	Stochastik				
10-M-PRG-082-	Programming course for students of Mathematics and other subjects									
mo1	ECTS 3 Duration			ı	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-	Computeroriented Mathematics									
mo1	ECTS	3	Duration	ı	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate	
	Course	:S		V + Ü	(no information o	n SWS (weekly contact	hours) and course language av	ailable)		
	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-DFT-082-m01 <b>Or</b>	rdinary Differential Equ	ations and Complex An	alysis	,			
EC	CTS 13 Duration	2 semester	Method of grading numerical grade	Modul level	undergraduate		
		This module comprises 3 module components. Information on courses will be listed separately for each module component.  • 10-M-DFT-1-082: V + Ü (no information on SWS (weekly contact hours) and course language available)  • 10-M-DFT-2-082: V + Ü (no information on SWS (weekly contact hours) and course language available)  • 10-M-DFT-P-082: M (no information on SWS (weekly contact hours) and course language available)					
Me							
		<ul> <li>Assessment in module</li> <li>2 ECTS, Method of</li> <li>oral examination</li> <li>Language of asse</li> <li>Only after succes</li> </ul>	later date, students will have to obtain the component 10-M-DFT-P-082: Examination of grading: numerical grade of one candidate each (approx. 30 minute essment: German, English if agreed upon we sful completion of module components: Suent 10-M-DFT-2 is a prerequisite for particip	in Ordinary Differential Equess) with the examiner successful completion of mo	uations and Complex Analysis odule component 10-M-DFT-1 or		
ot	<u> </u>	· · · · · ·	ditional prerequisites are listed in the sect	ion on assessments.			
Re	eferred to in LPO I	§ 73 (1) 1. Mathematik A	nalysis				

10-M-VAN-082- m01	Advanced Analysis									
	ECTS	8	Duratio	ı	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-RCK-082-	Small Reading Course Mathematics									
m01	ECTS	1	Duratio	า	1 semester	Method of grading	(not) successfully completed	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)						