

Annex SFB

Studienfachbeschreibung (subject description, SFB) for the subject Mathematics as Unterrichtsfach with the degree "Erste Staatsprüfung für das Lehramt an Mittelschulen"

Responsible: Institute of Mathematics

Examination regulations version: 2013

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 Unless othe

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not cre-

modules in this SFB: ditable 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:

LASP02009

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

25-Sep-2014 (2014-53)

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:

	Module title										
	ECTS		Duration	(in semesters)	Method of grading		Module level				
	Courses		To be spe	be specified in the form X (y) with course type X abbreviated as specified above and number of weekly contact hours y							
	Method of as	ssessm	ent								
	Only after su completion of		ıl if applica	f applicable							
	Other prereq	uisites	if applica	if applicable							
	Participants on of places		ocati- if applica	if applicable							
	Additional information		ion if applica	if applicable							
	Referred to in	n LPO I	if applica	if applicable (examination regulations for teaching-degree programmes)							

Scientific Discipline (54 ECTS credits)													
Compulsory Courses (54 ECTS credits)													
10-M-EL1-092-mo1 Elementary Mathematics 1 (German Grundschule/Hauptschule/Realschule)													
	ECTS 7 Duration	n 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); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 15 minutes) or an oral examination in groups (groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or by a written and/or multi-media portfolio (as announced)											
	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	§ 51 (1) 3. Mathematik Elementare Zahlentheorie, Elementare Stochastik, Elementargeometrie											

10-M-EL2-092-m01	Elementary Mathematics 2 (German Grundschule/Hauptschule/Realschule)												
	ECTS	11	Duration	1	2 semester	Method of grading numerical grade	Modul level	undergraduate					
	Course			•	10-M-EL2-P-092: M 10-M-EL2-1-092: V 10-M-EL2-2-092: V	module components. Information on courses w In (no information on SWS (weekly contact hours + Ü (no information on SWS (weekly contact ho + Ü (no information on SWS (weekly contact ho) and course langua urs) and course lang urs) and course lang	ge available) guage available) guage available)					
	Method	d of ass	essment	stated	d otherwise, success	lle comprises the assessments in the individual sful completion of the module will require succeomponent 10-M-EL2-P-092: Elementary Mathem	essful completion of	all individual assessments.					
				schule	e) 1 ECTS, Method of second examination or al examination or 30 minutes, groups Only after successfor M-EL2-1 and 10-M-I	grading: numerical grade on (approx. 90 minutes); if announced by the lect of one candidate each (approx. 20 minutes) or a s of 3: approx. 45 minutes) or by a written and/o ful completion of module components: Success EL2-2 is a prerequisite for participation in modu	curer, the written exa in oral examination or multi-media portfo sful completion of th ale component 10-M	mination can be replaced by an in groups (groups of 2: approx. olio (as announced) ne two module components 10EL2-P.					
				le/Rea	alschule) Elementar 6 ECTS, Method of exercises: At the bo completed over the	omponent 10-M-EL2-1-092: Elementary Mathem ry Mathematics 2: Geometry (German Grundscho grading: (not) successfully completed reginning of the course, the lecturer will specify e course of the semester for the module component component 10-M-EL2-2-092: Elementary Mathem	ule/Hauptschule/Re the type and scope nent to be considere	of exercises to be successfully ed successfully completed.					
				schule •	e/Realschule) Eleme 4 ECTS, Method of exercises: At the be completed over the	entary Mathematics 2: Stochastics (German Grugrading: (not) successfully completed reginning of the course, the lecturer will specify e course of the semester for the module compo	indschule/Hauptsch the type and scope nent to be considere	oule/Realschule) of exercises to be successfully ed successfully completed.					
	Referred to in LPO I			§ 51 (1	ı) 3. Mathematik Ele	ementare Zahlentheorie, Elementare Stochastik	, Elementargeometri	e					

10-M-M1GHR-092-	Basics in Mathematics (German Grundschule/Hauptschule/Gymnasium)											
mo1	ECTS	15	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	S		10-M-M1GHR-P-09210-M-M1GHR-1-092	2: M (no information o 2: V + Ü (no information	. Information on courses will be on SWS (weekly contact hours) a on on SWS (weekly contact hour on on SWS (weekly contact hou	and course lan rs) and course	anguage available)				
	Method of assessment					essments in the individual mode module will require successful						
				um)	•	•	cs (German Gru	ndschule/Hauptschule/Gymnasi-				
				 written examination an oral examination 45 minutes, groups Only after successing M-M1GHR-1 and 10 Assessment in module conschule/Gymnasium) Basing 8 ECTS, Method of exercises: At the brocompleted over the Assessment in module conle/Hauptschule/Gymnasium) 	n of one candidate ea of 3: approx. 60 min ful completion of mod -M-M1GHR-2 is a prer imponent 10-M-M1GH cs in Mathematics - L grading: (not) succes eginning of the cours e course of the semes imponent 10-M-M1GH	es); if announced by the lecture ch (approx. 30 minutes) or an or utes) or by a written and/or mudule components: Successful coequisite for participation in moderate and the sequisite for participation in moderate and the sequipation in a sequipation in a sequipation in the sequ	al examination alti-media portfice completion of the dule componer s - Linear Algeb chule/Hauptsch ype and scope to be considere cs - Analysis in	in groups (groups of 2: approx. polio (as announced) le two module components 10- nt 10-M-M1GHR-P. pra (German Grundschule/Haupt- nule/Gymnasium) of exercises to be successfully				
				 exercises: At the be 	eginning of the cours	e, the lecturer will specify the ty ter for the module component t						
	Referre	d to in I	-	§ 51 (1) 1. Mathematik Diff § 51 (1) 2. Mathematik Lin		rechnung, Gewöhnliche Differe alytische Geometrie	ntialgleichung	en				

10-M-M2GHR-092-												
mo1	ECTS	18	Duration	3 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	S		This module has 4 components; information on courses listed separately for each component. • 10-M-M2GHR-P-092: M (no information on language and number of weekly contact hours available) • 10-M-M2GHR-1-092, 10-M-M2GHR-2-092, and 10-M-M2GHR-3-092: V + Ü (no information on language and number of weekly contact hours available)								
	Method	d of ass	essment		ollowing 4 assessment c s to pass the module as		d otherwise, student	s must pass all of these as-				
				Assessment in module component 10-M-M2GHR-P-092: Aufbau Mathematik - Prüfung (Grund-, Haupt- und Realschule) (Assessment Advanced Mathematics, Grundschule, Hauptschule and Realschule) • 1 ECTS credit, numerical grading • written examination (approx. 120 minutes); if announced by the lecturer, the written examination may be replaced by an oral examination of one candidate each (approx. 30 minutes) or an oral examination in groups (groups of 2: approx. 45 minutes, groups of 3: approx. 60 minutes) or by a written and/or multi-media portfolio (as announced). • Only after successful completion of module components: Module component 10-M-M2GHR-P can only be taken by students who successfully completed the three module components 10-M-M2GHR-1, 10-M-M2GHR-2 and 10-M-M2GHR-3. Assessment in module component 10-M-M2GHR-1-092: Aufbau Mathematik - Analysis in mehreren Variablen (Grund-, Haupt-und Realschule) (Advanced Mathematics - Analysis in Several Variables, Grundschule, Hauptschule and Realschule), in module component 10-M-M2GHR-3-092: Aufbau Mathematik - Differentialgleichungen (Grund-, Haupt- und Realschule) (Advanced Mathematics - Differential Equations, Grundschule, Hauptschule and Realschule) (Advanced Mathematik - Differentialgleichungen (Grund-, Haupt- und Realschule) (Advanced Mathematics - Differential Equations, Grundschule, Hauptschule and Realschule): • 5 ECTS credits (10-M-M2GHR-2-092: 7 ECTS credits), pass / fail • exercises: at the beginning of the course, the lecturer will specify the type and scope of exercises to be successfully								
	Referre	d to in			Differential- und Integra Lineare Algebra und An	llrechnung, Gewöhnliche alytische Geometrie	Differentialgleichung	en				
10-M-M3GHR-092-		n Cour			ndschule/Hauptschule/G	. <u>* </u>						
mo1	ECTS	3	Duration			(not) successfully comp		undergraduate				
	Course					ırs) and course language	available)					
	Method of assessment other prerequisites			talk (approx. 45 minut	es)							
				tive details at the beg on to assessment. If s the lecturer will put th	inning of the course. Reg tudents have obtained t eir registration for asses nt or in the subsequent s	gistration for the course w he qualification for admis sment into effect. Studer	vill be considered a dession to assessment on the minute of the contract of th	nform students about the respec- eclaration of will to seek admissi- over the course of the semester, equisites will be admitted to as- ents will have to obtain the quali-				

Teaching (12 ECTS	credits)										
10-M-DGHR-092-	Didacti	ics of M	athematic	cs (Ger	man Hauptschule	/Realschule)					
mo1	ECTS 10 Duration			n	3 semester	Method of gradin	g numerical grade	Modul level	undergraduate		
	Courses			•	10-M-DGHR-P-09 10-M-DGHR-1-09 available)	2: M (no information 2, and 10-M-DGHR-2-	on courses listed separate on language and number of 092: V + Ü (no information on language and number of	fweekly contact hour on language and nu	rs available) Imber of weekly contact hours		
	Method	d of ass	essment	sessr Asses	nent components	to pass the module a	HR-P-092: Didaktik der Mat		·		
				Assestics D - Geo	 1 ECTS credit, numerical grading written examination (approx. 120 minutes); if announced by the lecturer, the written examination may be replaced by an oral examination of one candidate each (approx. 30 minutes) or an oral examination in groups (groups of 2 approx. 45 minutes, groups of 3: approx. 60 minutes) or by a written and/or multi-media portfolio (as announced). Only after successful completion of module components: Module component 10-M-DGHR-P can only be taken by stu dents who successfully completed the three module components 10-M-DGHR-1 and 10-M-DGHR-2 and 10-M-DGHR-3. Assessment in module component 10-M-DGHR-1-092: Didaktik der Mathematik - Algebra (Haupt- und Realschule) (Mathematics Didactics - Algebra, Hauptschule and Realschule), and in module component 10-M-DGHR-2-092: Didaktik der Mathematics Didactics - Geometrie (Haupt- und Realschule) (Mathematics Didactics - Geometry, Hauptschule and Realschule): 4 ECTS credits, pass / fail exercises: at the beginning of the course, the lecturer will specify the type and scope of exercises to be successfully completed. Assessment in module component 10-M-DGHR-3-092: Didaktik der Mathematik - Stochastik (Haupt- und Realschule) (Mathematics Didactics - Stochastics, Hauptschule and Realschule) 1 ECTS credit, pass / fail exercises: at the beginning of the course, the lecturer will specify the type and scope of exercises to be successfully completed over the course of the semester for the module component to be considered successfully completed. § 51 (1) 4. Mathematik Didaktik § 51 (1) 4. Mathematik Fachdidaktik 						
	Referred to in LPO I			§ 51 (ı) 4. Mathematik F	achdidaktik					
10-M-DV-			_		natics (German Ha	<u>, </u>					
HS-092-m01	ECTS 2 Duratio				1 semester		g (not) successfully compl		undergraduate		
	Course			_ `			ours) and course language a				
							t to be completed at home	(approx. 50 to 60 hou	ırs)		
	Referred to in LPO I		LPO I	§ 51 (1) 4. Mathematik F	achdidaktik					
Freier Bereich (gen	eral as v	vell as s	subject-sr	pecific	electives) (0-15 EC	TS credits)					

Freier Bereich (general as well as subject-specific electives) (o-15 ECTS credits)

Teaching degree students must take modules worth a total of 15 ECTS credits in the area Freier Bereich (general as well as subject-specific electives) (Section 9 LASPO (general academic and examination regulations for teaching-degree programmes)). To achieve the required number of ECTS credits, students may take any modules from the areas below.

Freier Bereich int "Freien Bereich" im					for a teaching degree ca	in be found in the respecti	ve Annex "Ergän	zende Bestimmungen für den		
Mathematics				electives) subject	specific)					
10-M-DCMU-092-	Computers	s in Mathemat	tical Te	eaching						
mo1	ECTS 3	Duration	n	1 semester	Method of grading (n	ot) successfully completed	Modul level	undergraduate		
	Courses	<u> </u>	V (no	information on SWS	(weekly contact hours)	and course language avai	lable)			
	Method of	assessment			ture of time to be specify two years, summer se	ied by the lecturer at the b nester	eginning of the	course)		
10-M-DM-	Methodolo	ogy of Teachir	ng in M	lathematics (Germa	n Hauptschule)					
HS-092-m01	ECTS 3	Duration	1	1 semester	Method of grading (n	ot) successfully completed	d Modul level	undergraduate		
	Courses		S (no	information on SWS	(weekly contact hours)	and course language avai	lable)	•		
	Method of	assessment	a) tall	k (approx. 45 minute	s) or b) project (approx.	5 to 15 pages) or c) portfo	lio (approx. 5 to	15 pages)		
10-M-DV-	E-Learning	g and Blended	Learn	ing in Mathematics	at school					
HB-092-m01	ECTS 3	Duration	1	1 semester	Method of grading (n	ot) successfully completed	Modul level	undergraduate		
	Courses	<u>'</u>	Ü (no	information on SWS	(weekly contact hours)	and course language avai	lable)			
	Method of	assessment	web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)							
			tive details at the beginning of the course. Registration for the course will be considered a conton assessment. If students have obtained the qualification for admission to assessment the lecturer will put their registration for assessment into effect. Students who meet all presessment in the current or in the subsequent semester. For assessment at a later date, studication for admission to assessment anew. Courses offered online by Virtuelle Hochschule matics are always incorporated into a module with an exercise. The respective modules car (online) added in brackets. Registration for the exercise must always be made via SB@Hom This registration for the exercise will be considered a declaration of will to seek admission to successfully completed, the lecturer will put the registration for assessment into effect at the				over the course of the semester, equisites will be admitted to asents will have to obtain the quali-Bayern (vhb) in the field of mathebe identified by the word virtuell e at the beginning of the course. o assessment. If the exercise was			
10-M-VH-	Stochastic	cs in Sekunda	rstufe	l (virtual course)						
BSto-092-m01	ECTS 3	Duration	1	1 semester	Method of grading (n	ot) successfully completed	d Modul level	undergraduate		
	Courses		Ü (no information on SWS (weekly contact hours) and course language available)							
	Method of	assessment	web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)							
	other prere	equisites	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. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathematics are always incorporated into a module with an exercise. The respective modules can be identified by the word virtuell (online) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise will be considered a declaration of will to seek admission to assessment. If the exercise was successfully completed, the lecturer will put the registration for assessment into effect at the end of the course.							
LA Mittelschulen Mathen	natics (2013)					JMU Würzburg • generated 07-Sep				

10-M-VHBA-	Basics in Arith	metics (vi	irtual c	ourse)							
ri-092-m01	ECTS 3	Duration	า	1 semester	Method of grading (not) successfully completed Modul level undergraduate						
	Courses		Ü (no	(no information on SWS (weekly contact hours) and course language available)							
	Method of asse	essment	web-b	web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)							
	other prerequis	sites	tive d on to the le sessn fication matic (onlin This re	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respetive 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 semeste 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. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mat matics are always incorporated into a module with an exercise. The respective modules can be identified by the word virtue (online) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise will be considered a declaration of will to seek admission to assessment. If the exercise we successfully completed, the lecturer will put the registration for assessment into effect at the end of the course.							
10-M-	Basics in Scho			· · · · · · · · · · · · · · · · · · ·							
VHBGeo-092-mo1	ECTS 3	Duration		1 semester	Method of grading (not) successfully completed Modul level undergraduate						
	Courses				/S (weekly contact hours) and course language available)						
	Method of asse	essment		web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)							
	other prerequis		Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the relive details at the beginning of the course. Registration for the course will be considered a declaration of will to seek account on assessment. If students have obtained the qualification for admission to assessment over the course of the seminated the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to sessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the fication for admission to assessment anew. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of matics are always incorporated into a module with an exercise. The respective modules can be identified by the word very confine) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the confinence of the exercise will be considered a declaration of will to seek admission to assessment. If the exercise successfully completed, the lecturer will put the registration for assessment into effect at the end of the course.								
10-M-	Mathematics i	,		al course)							
VHBM10-092-m01	ECTS 3	Duration		1 semester	Method of grading (not) successfully completed Modul level undergraduate						
	Courses		Ü (no information on SWS (weekly contact hours) and course language available)								
	Method of asse		web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)								
LA Mittelschulen Mathem	other prerequis	sites	tive d on to the le sessn fication matic (onlin This re	etails at the beginni assessment. If stud- cturer will put their in ent in the current of on for admission to a s are always incorpo e) added in bracket egistration for the ex	ust be met to qualify for admission to assessment. The lecturer will inform students about the respec- ning of the course. Registration for the course will be considered a declaration of will to seek admissi- dents have obtained the qualification for admission to assessment over the course of the semester, or registration for assessment into effect. Students who meet all prerequisites will be admitted to as- or in the subsequent semester. For assessment at a later date, students will have to obtain the quali- or assessment anew. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathe- orated into a module with an exercise. The respective modules can be identified by the word virtuell ets. Registration for the exercise must always be made via SB@Home at the beginning of the course. exercise will be considered a declaration of will to seek admission to assessment. If the exercise was the lecturer will put the registration for assessment into effect at the end of the course.						

Thesis (10 ECTS credits)

Preparation of a written Hausarbeit (thesis) in accordance with the provisions of Section 29 LPO I (examination regulations for teaching-degree programmes) is a prerequisite for teaching degree students to be admitted to the Erste Staatsprüfung (First State Examination). In accordance with the provisions of Section 29 LPO I, students studying for a teaching degree Sonderpädagogik may write this thesis in the subject they selected as sonderpädagogische Fachrichtung (special education specialization). Pursuant to Section 29 Subsection 1 Sentence 2 LPO I, students may also choose to write an interdisciplinary thesis.

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10-M-HM-	Thesis	Thesis in Mathematics (teaching degree at German Hauptschule)											
HS-092-m01	ECTS	10	Duration	ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	es		no col	no courses assigned								
	Metho	d of asse		written thesis (approx. 250 to 300 hours total) Language of assessment: German, exceptions in accordance with Section 29 Subsection 4 LPO I (examination regulations for teaching degree programmes)									
	Modul comple	es succe eted	ssfully	supervisor.									
	Additio	onal Info	rmation	Additi	onal information on	module duration: 11	o 2 semesters.						