

Module Catalogue

for the Subject

Mathematics

as Unterrichtsfach with the degree "Erste Staatsprüfung für das Lehramt an Grundschulen"

> Examination regulations version: 2009 Responsible: Institute of Mathematics

JMU Würzburg • generated 26-Aug-2024 • exam. reg. data record L1|105|-|-|H|2009

Contents

The subject is divided into	3
Abbreviations used, Conventions, Notes, In accordance with	4
Scientific Discipline	5
Compulsory Courses	6
Elementary Mathematics 1 (German Grundschule/Hauptschule/Realschule)	7
Elementary Mathematics 2 (German Grundschule/Hauptschule/Realschule)	8
Basics in Mathematics (German Grundschule/Hauptschule/Gymnasium)	10
Advances in Mathematics (German Grundschule/Hauptschule/Realschule)	12
Revision Course in Mathematics (German Grundschule/Hauptschule/Gymnasium)	14
Teaching	15
Didactics of Mathematics (German Grundschule)	16
Advanced Didactics of Mathematics (German Grundschule)	18
Freier Bereich (general as well as subject-specific electives)	19
Mathematics	20
Selected Topics in Didactics of Mathematics (German Grundschule)	21
Methodology of Teaching in Mathematics (German Grundschule)	22
E-Learning and Blended Learning in Mathematics at school	23
Basics in Arithmetics (virtual course)	25
Basics in School Geometry (virtual course)	27
Thesis	29
Thesis in Mathematics (teaching degree at German Grundschule)	30



The subject is divided into

section / sub-section	ECTS credits	starting page
Scientific Discipline	54	5
Compulsory Courses	54	6
Teaching	12	15
Freier Bereich (general as well as subject-specific electives)		19
Mathematics		20
Thesis	10	29



Abbreviations used

Course types: \mathbf{E} = field trip, \mathbf{K} = colloquium, \mathbf{O} = conversatorium, \mathbf{P} = placement/lab course, \mathbf{R} = project, \mathbf{S} = seminar, \mathbf{T} = tutorial, $\ddot{\mathbf{U}}$ = exercise, \mathbf{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

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

Notes

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 the 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:

LASPO2009

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

23-May-2012 (2012-82)

25-Sep-2014 (2014-65)

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.

LA Grundschuler	Mathematics	(2009)
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Scientific Discipline

(54 ECTS credits)





Compulsory Courses

(54 ECTS credits)

LA Grundschulen Mathematics (2009)	JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-
	cord Lehramt Grundschulen (Unterrichtsfach) Mathematik - 2009

Module	e title				Abbreviation	
Elemen	ntary M	athematics 1 (German (Grundschule/Hauptsch	ule/Realschule)	10-M-EL1-092-m01	
Module	e coord	inator		Module offered by		
Dean o	f Studi	es Mathematik (Mather	natics)	Institute of Mathen	natics	
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
7		rical grade				
, Duratio		Module level	Other prerequisites			
1 semester undergraduate Certa sess at the sider dent the c sess ted to		sessment. The lectu at the beginning of t sidered a declaratio dents have obtained the course of the set sessment into effect ted to assessment in	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for			
Conten	Its	<u> </u>				
Introdu	uction t	o fundamental techniqı ics in elementary numb			er as a basic theme in mathema- system.	
Intend	ed lear	ning outcomes				
matica the stru	l proof ucture o		le to apply these skills	to basic problems i	vell as the fundamental mathe- n the fields of number theory and	
	_	rmation on SWS (week)			able)	
Metho	d of ass		·		ot every semester, information on whether	
ced by	an oral	examination of one ca	ndidate each (approx.	15 minutes) or an or	itten examination can be repla- al examination in groups (groups or multi-media portfolio (as an-	
Allocat		olaces				
Additic	onal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
		-				
Referre	d to in	LPOI (examination regulation	ons for teaching-degree progra	mmes)		
		hematik Elementare Za			entargeometrie	
Module	-		intentiteone, Elemental	e stoendstik, Lieffle		
First sta First sta First sta	ate exa ate exa ate exa	mination for the teachi mination for the teachi mination for the teachi mination for the teachi	ng degree Hauptschule ng degree Realschule N	Mathematics (2009) Nathematics (2009)		
)	

Module	e title				Abbreviation
Elemen	ntary M	athematics 2 (German G	rundschule/Hauptsch	nule/Realschule)	10-M-EL2-092-m01
Module	e coord	inator		Module offered by	
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
11	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
2 seme	ester	undergraduate			
Conten					
		o fundamental and advar Is well as stochastics.	nced techniques in m	athematics. Basic to	opics in elementary and Euclide-
Intend	ed lear	ning outcomes			
matica	l proof				vell as the fundamental mathe- n the fields of Euclidean geometry
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
• 1 Method module is Assess	o-M-EL d of ass s creditab ment ir	2-2-092: V + Ü (no inform cessment (type, scope, langua le for bonus) n this module comprises	nation on SWS (weekl ge — if other than German, o the assessments in t	y contact hours) and examination offered — if no he individual modul	d course language available) d course language available) ot every semester, information on whether e components as specified be- successful completion of all indi-
schule, 1 w r g ti C p Assess le/Hau	ment in /Realso ECTS, vritten o eplaced groups i-media Dnly aft conents ment in ptschu	n module component 10- hule) Method of grading: nume examination (approx. 90 d by an oral examination (groups of 2: approx. 30 portfolio (as announced er successful completion 5 10-M-EL2-1 and 10-M-EL n module component 10-	erical grade minutes); if announc of one candidate ea minutes, groups of <u>3</u>) of module componer 2-2 is a prerequisite f M-EL2-1-092: Elemen	ed by the lecturer, t ch (approx. 20 minu e: approx. 45 minute nts: Successful comp for participation in m tary Mathematics 2	(German Grundschule/Haupt- he written examination can be utes) or an oral examination in es) or by a written and/or mul- pletion of the two module com- nodule component 10-M-EL2-P. c Geometry (German Grundschu- undschule/Hauptschule/Real-
• e b s Assess schule, le/Real • 4 • e b	ECTS, exercise one succ success ment i /Haupt lschule ECTS, exercise one succ	essfully completed over t fully completed. n module component 10- schule/Realschule) Elem) Method of grading: (not) es: At the beginning of th	ne course, the lectur the course of the sem M-EL2-2-092: Elemer entary Mathematics : successfully complet ne course, the lectur	er will specify the ty lester for the module ntary Mathematics 2 2: Stochastics (Germ ted er will specify the ty	ype and scope of exercises to e component to be considered : Stochastics (German Grund- nan Grundschule/Hauptschu- ype and scope of exercises to e component to be considered

Allocation of places

Additional information

Workload

Teaching cycle

Referred to in LPO I (examination regulations for teaching-degree programmes)

§ 51 (1) 3. Mathematik Elementare Zahlentheorie, Elementare Stochastik, Elementargeometrie

Module appears in

First state examination for the teaching degree Grundschule Mathematics (2009) First state examination for the teaching degree Hauptschule Mathematics (2009) First state examination for the teaching degree Realschule Mathematics (2009)

First state examination for the teaching degree Mittelschule Mathematics (2013)

	e title			,	Abbreviation	
Basics in Mathematics (German Grundschule/Hauptschule/Gymnasium)				10-M-M1GHR-092-n	101	
Module	e coord	inator		Module offered by		
Dean o	f Studi	es Mathematik (Mathen	natics)	Institute of Mathen	natics	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
15	nume	rical grade				
Duration Module level Other prerequisites						
2 seme	ester	undergraduate				
Conten	Its					
Introdu	iction t	o the two most importar	nt basic fields of math	ematics: linear algel	ora and analysis.	
Intende	ed lear	ning outcomes				
is able orally a	to com and in v	is acquainted with the b prehend the central pro vritten form. He/She car ebra to solve them.	of methods, can perfo	orm easy mathemation	cal arguments and pr	resent them
Course	S (type, r	number of weekly contact hours	, language — if other than Ge	rman)		
compo • 1 • 1	nent. o-M-M: o-M-M:	omprises 3 module con 1GHR-P-092: M (no infoi 1GHR-1-092: V + Ü (no in 1GHR-2-092: V + Ü (no in	mation on SWS (week formation on SWS (we	ly contact hours) an ekly contact hours) a	d course language av and course language	vailable) available)
module is		sessment (type, scope, langu	lage — if other than German,	examination offered — if n	ot everv semester. informati	ion on whether
Assess	ment in nless st	n this module comprises ated otherwise, success			e components as sp	ecified be-
Assess low. Ur vidual a Assess schule, • 1 • w ru g ti • C p M Assess schule, le/Gym • 8 • e b s	ment in nless st assess ment in /Gymna ECTS, vritten o eplaced groups i-media Doly aft ponents A-M1GH ment in /Haupt nasium B ECTS, exercise pe succ success	n this module comprises ated otherwise, success ments. n module component 10 asium) Method of grading: num examination (approx. 12 d by an oral examinatio (groups of 2: approx. 49 a portfolio (as announce er successful completio 5 10-M-M1GHR-1 and 10- IR-P. n module component 10 schule/Gymnasium) Ba n) Method of grading: (not es: At the beginning of essfully completed over fully completed.	sful completion of the -M-M1GHR-P-092: Ba herical grade o minutes); if announ n of one candidate ea 5 minutes, groups of 3 d) n of module component M-M1GHR-2 is a prere -M-M1GHR-1-092: Bassics in Mathematics - sics in Mathematics - c) successfully complet the course, the lecture the course of the sem	module will require sics in Mathematics ced by the lecturer, f ch (approx. 30 minut approx. 60 minute nts: Successful com quisite for participa sics in Mathematics Linear Algebra (Gern ted er will specify the t nester for the modul	e components as spo successful completion (German Grundschu the written examination utes) or an oral exam es) or by a written an pletion of the two mo tion in module component - Linear Algebra (Ger nan Grundschule/Ha ype and scope of ex e component to be c	ecified be- on of all indi- le/Haupt- ion can be nination in nd/or mul- odule com- oonent 10- man Grund- uptschu- sercises to onsidered
Assess low. Un vidual a Assess schule, 1 • 1 • w rd g ti • C p M Assess schule, le/Gym • 8 • e b s Schule, le/Gym • 5 Schule, e b s Schule, e b s Schule, e b s Schule, e b s Schule, e b s Schule, e b s Schule, e b s Schule, e b s Schule, e b s Schule, e schule, schule, e schule, e schule, e schule, e schule, e schule, e schule, s schule, e s schule, e s schule, e s s schule, e s s s s s s s s s s s s s s s s s s	ment in less st assess ment in /Gymna ECTS, vritten of eplaced groups i-media Doly aft ponents A-M1GH ment in /Haupt BECTS, exercise pe succ success ment in rundsch /Haupt b ECTS, exercise pe succ success ment in rundsch /Haupt b ECTS, exercise pe succ success ment in rundsch /Haupt b ECTS, exercise pe succ	n this module comprises ated otherwise, success ments. n module component 10 asium) Method of grading: num examination (approx. 12 d by an oral examinatio (groups of 2: approx. 49 a portfolio (as announce er successful completio 5 10-M-M1GHR-1 and 10- IR-P. n module component 10 schule/Gymnasium) Ba n) Method of grading: (not es: At the beginning of essfully completed over	-M-M1GHR-P-092: Batherical grade o minutes); if announ n of one candidate ea g minutes, groups of g d) n of module component M-M1GHR-2 is a prere -M-M1GHR-1-092: Bast sics in Mathematics - the course, the lectur the course of the sem -M-M1GHR-2-092: Bast nasium) Basics in Mat	module will require sics in Mathematics ced by the lecturer, f ch (approx. 30 minute approx. 60 minute nts: Successful comp quisite for participa sics in Mathematics Linear Algebra (Gern ted er will specify the t hester for the modul sics in Mathematics hematics - Analysis ted er will specify the t	e components as spe successful completion (German Grundschu the written examination utes) or an oral exam es) or by a written an pletion of the two mo tion in module comp - Linear Algebra (Ger nan Grundschule/Ha ype and scope of ex e component to be c - Analysis in one Var in one Variable (Gern ype and scope of ex	ecified be- on of all indi- le/Haupt- ion can be nination in nd/or mul- indule com- oonent 10- man Grund- uptschu- tercises to onsidered riable (Ger- nan Grund- tercises to

Allocation of places

Additional information

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Workload

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Teaching cycle

Referred to in LPO I (examination regulations for teaching-degree programmes)

§ 51 (1) 1. Mathematik Differential- und Integralrechnung, Gewöhnliche Differentialgleichungen

§ 51 (1) 2. Mathematik Lineare Algebra und Analytische Geometrie

Module appears in

First state examination for the teaching degree Grundschule Mathematics (2009) First state examination for the teaching degree Hauptschule Mathematics (2009) First state examination for the teaching degree Realschule Mathematics (2009) First state examination for the teaching degree Mittelschule Mathematics (2013)

LA Grundschulen Mathematics (2009)

Module	e title			·	Abbreviation
Advanc	Advances in Mathematics (German Grundschule/Hauptschule/Realschule)			ule/Realschule)	10-M-M2GHR-092-m01
Module coordinator				Module offered by	
Dean of Studies Mathematik (Mathematics)			atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
18	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
3 seme	ster	undergraduate			
Conten	ts				
metry;	extensi		o several variables, b		of linear algebra in analytic geo- ferential equations and applica-
Intende	ed lear	ning outcomes			
to com and in	prehen written	d the central proof metho form. He/She can analys	ods, can perform easy se basic mathematica	y mathematical argu al problems and emp	tial equations. He/She is able ments and present them orally bloy methods of analysis in one any differential equations to solve
Course	S (type, r	umber of weekly contact hours, l	anguage — if other than Ger	rman)	
• 1 • 1 n	o-M-M: o-M-M: umber d of ass	2GHR-1-092, 10-M-M2GHI of weekly contact hours cessment (type, scope, langua	nation on language a R-2-092, and 10-M-M2 available)	nd number of weekl 2GHR-3-092: V + Ü (n	y contact hours available) o information on language and ot every semester, information on whether
	-	le for bonus)	mont components	Inlace stated other	vise, students must pass all of
		nent components to pass			nse, students must pass all of
schule) • 1 • w b in ti • C b M Assess (Grund schule gen (Gr) (Asses ECTS c vritten oe repla n group i-media Dnly aft oe taken A2GHR- and Re and Re rund-, F	ssment Advanced Mather redit, numerical grading examination (approx. 12 uced by an oral examination (groups of 2: approx. 4 portfolio (as announced er successful completion by students who succe 2 and 10-M-M2GHR-3. 1 module component 10- ot- und Realschule) (Adva alschule), in module com laupt- und Realschule) (A	matics, Grundschule, o minutes); if annour ion of one candidate 5 minutes, groups of)). n of module component ssfully completed the M-M2GHR-1-092: Auf anced Mathematics - iponent 10-M-M2GHI Advanced Mathematic	Hauptschule and Re nced by the lecturer, each (approx. 30 m 3: approx. 60 minut ents: Module compo e three module compo fbau Mathematik - A Analysis in Several V R-3-092: Aufbau Mat cs - Differential Equa	, the written examination may inutes) or an oral examination es) or by a written and/or mul- onent 10-M-M2GHR-P can only ponents 10-M-M2GHR-1, 10-M- nalysis in mehreren Variablen /ariables, Grundschule, Haupt- thematik - Differentialgleichun- itions, Grundschule, Hauptschule
(Grund Realsch • 5 • e b	-, Haup hule) : ECTS c exercise e succ	t- und Realschule) (Adva redits (10-M-M2GHR-2-0 s: at the beginning of th	nced Mathematics - I 92: 7 ECTS credits), p ne course, the lecture	Differential Equation ass / fail er will specify the ty	ematik - Differentialgleichungen s, Grundschule, Hauptschule and ype and scope of exercises to e component to be considered

Allocation of places

Additional information

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Workload

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Teaching cycle

Referred to in LPO I (examination regulations for teaching-degree programmes)

§ 51 (1) 1. Mathematik Differential- und Integralrechnung, Gewöhnliche Differentialgleichungen

§ 51 (1) 2. Mathematik Lineare Algebra und Analytische Geometrie

Module appears in

First state examination for the teaching degree Grundschule Mathematics (2009) First state examination for the teaching degree Hauptschule Mathematics (2009) First state examination for the teaching degree Realschule Mathematics (2009) First state examination for the teaching degree Mittelschule Mathematics (2013)

LA Grundschulen Mathematics (2009)

Modul	e title				Abbreviation
Revisi	on Cour	se in Mathematics (Gern	nan Grundschule/Hau	ıptschule/Gymnasi-	10-M-M3GHR-092-m01
um)					
Modul	e coord	inator		Module offered by	
Dean c	of Studi	es Mathematik (Mathema	atics)	Institute of Mathem	atics
ECTS	Meth	od of grading	Only after succ. com	pl. of module(s)	
3	(not)	successfully completed			
Durati	on	Module level	Other prerequisites		
1 seme	ester	undergraduate	sessment. The lectu at the beginning of t sidered a declaratio dents have obtained the course of the se sessment into effect ted to assessment in	rer will inform stude he course. Registrat n of will to seek adm I the qualification fo mester, the lecturer Students who mee n the current or in th date, students will h	alify for admission to as- nts about the respective details ion for the course will be con- hission to assessment. If stu- r admission to assessment over will put their registration for as- t all prerequisites will be admit- e subsequent semester. For as- ave to obtain the qualification for
Conter	nts	<u> </u>			
		consolidation of the topic	cs covered in module	s 10-M-M1GHR and 1	o-M-M2GHR by completing exer-
		wering past state examin			
Intend	ed lear	ning outcomes			
		as advanced knowledge §51 (2) 1, 2, and is able			regulations for teaching degree amination.
Course	es (type, 1	number of weekly contact hours,	anguage — if other than Ger	man)	
Ü (no i	nforma	tion on SWS (weekly con	tact hours) and cours	e language available	e)
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
talk (a	pprox. 4	45 minutes)			
	tion of				
Additio	onal inf	ormation			
Worklo	oad				
Teachi	ing cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
Modul	e appea	ars in			
		mination for the teaching	g degree Grundschule	Mathematics (2009))
		mination for the teaching		-	
		mination for the teaching		-	
First st	ate exa	mination for the teaching	g degree Mittelschule	Mathematics (2013)	





Teaching

(12 ECTS credits)

Module title			Abbreviation	
Didactics of N	Didactics of Mathematics (German Grundschule)			10-M-DGGS-092-m01
Module coord	linator		Module offered by	
Dean of Studies Mathematik (Mathema		atics)	Institute of Mathem	atics
ECTS Meth	od of grading	Only after succ. com	pl. of module(s)	
10 nume	erical grade			
Duration	Module level	Other prerequisites		
3 semester	undergraduate			
Contents				
				account modern research in ma- also including modern technolo-
Intended lear	ning outcomes			
psychology a ant models, p She/he know can employ a	nd didactics of mathemat presentations and media s about common difficult nd assess didactical prin	tics, fundamentals in which can be employe ies and problems of p ciples and teaching a	elementary school n ed in elementary sch oupils in the acquisit nd learning strategie	school, basics in developmental nathematics, as well as import- iool teaching of mathematics. ion of mathematical skills, and es.
	number of weekly contact hours, l nas 4 components; inform			
 10-M-D 10-M-D tact hot 10-M-D 	GGS-P-092: M (no informa GGS-1-092, and 10-M-DG(urs available) GGS-3-092: V (no informa	ation on language and GS-2-092: V + Ü (no in Ition on language and	d number of weekly o formation on langua I number of weekly c	contact hours available) ge and number of weekly con-
module is credital				t every semester, monitation on whether
	nas the following 4 assessment components to pass	•		ise, students must pass all of
sessment Ma 1 ECTS of written be repla in group ti-media Only af be take DGGS-2 Assessment i thematics Dio tik - Geometri 4 ECTS exercise be succ success Assessment i tericht (Gruno	thematics Didactics, Grun credit, numerical grading examination (approx. 12) aced by an oral examinat os (groups of 2: approx. 4 a portfolio (as announced ter successful completio en by students who succe and 10-M-DGGS-3. n module component 10 - lactics - Arithmetic, Grund e (Grundschule) (Mathem credits, pass / fail es: at the beginning of the essfully completed over the fully completed. n module component 10 - lschule) (Mathematics Did schule) (Mathematics Did	ndschule) o minutes); if annour ion of one candidate 5 minutes, groups of I). n of module compor essfully completed th M-DGGS-1-092: Dida dschule), in module c natics Didactics - Geo he course, the lecture the course of the sem M-DGGS-3-092: Dida	nced by the lecturer, each (approx. 30 mi 3: approx. 60 minuto nents: Module comp ne three module com ktik der Mathematik omponent 10-M-DGC metry, Grundschule) er will specify the ty nester for the module ktik der Mathematik	vpe and scope of exercises to e component to be considered - Sachbezogener Mathematikun-
	credit, pass / fail	שמכנוכא - אףףווכמנוסח (or mathematics, Gru	nuschule)

• 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.

Allocation of places

Julius-Maxin

UNIVERSITÄT

WÜRZBURG

Additional information

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Workload

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Teaching cycle

Referred to in LPO I (examination regulations for teaching-degree programmes)

§ 51 (1) 4. Mathematik Fachdidaktik

Module appears in

First state examination for the teaching degree Grundschule Mathematics (2009)

Module	Module title Abbreviation				
Advanc	ed Did	actics of Mathematics (G	ierman Grundschule)		10-M-DVGS-092-m01
Module	e coord	inator		Module offered by	,
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathe	matics
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
2	(not)	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts	·	·		
lar mat possib	hemati le appr	ical foundations, didactions and the classroom is the classroom is the classroom.	analyses, contempo		unt different aspects, in particu- mathematics didactics as well as
Intend	ed lear	ning outcomes			
		s able to discuss central t , considering subject-spe			ics in elementary school (German
Course	S (type, r	number of weekly contact hours,	anguage — if other than Ger	rman)	
S (no ir	nforma	tion on SWS (weekly con	act hours) and cours	e language availab	le)
		5 essment (type, scope, langua ble for bonus)	ge — if other than German, o	examination offered — if r	not every semester, information on whether
a) talk	(approz	x. 60 minutes) or b) assig	nment to be complet	ed at home (approx	x. 50 to 60 hours)
Allocat	ion of _l	places			
Additio	onal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	immes)	
§ 51 (1)	4. Mat	hematik Fachdidaktik			
Module	e appea	ars in			
First sta	ate exa	mination for the teaching	g degree Grundschule	e Mathematics (200	9)



Freier Bereich (general as well as subject-specific electives)

(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 -- interdisciplinary: The interdisciplinary additional offer for a teaching degree can be found in the respective Annex "Ergänzende Bestimmungen für den "Freien Bereich" im Rahmen des Studiums für ein Lehramt".





Mathematics (ECTS credits)

(Freier Bereich (general as well as subject-specific electives) -- subject specific)

Module title					Abbreviation
Selected Topics in Didactics of Mathematics (German Grundschule)			dschule)	10-M-DAGS-092-m01	
Modul	e coord	inator		Module offer	ed by
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of N	lathematics
ECTS	Meth	od of grading	Only after succ. com	pl. of module	(s)
2	(not)	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conten	nts				
on of te schule matics	eaching , select didact	g materials for mathemati ed topics and research re	ics in Grundschule, u esults in modern matl	sing compute hematics dida	ctic aspects (e.g. dyscalculia, evaluati- rs for teaching mathematics in Grund- actics, theoretical foundations of mathe substantial learning environments).
The stu plannii	udent is ng and	acquainted with theoret			athematics, knows important aspects c gies for teaching and learning und can
Course	es (type, 1	number of weekly contact hours, l	anguage — if other than Ger	man)	
S (no iı	nforma	tion on SWS (weekly cont	act hours) and cours	e language av	ailable)
		sessment (type, scope, langua ble for bonus)	ge — if other than German, e	examination offere	d — if not every semester, information on whether
		x. 60 minutes) or b) proje ffered: once a year, winte		ges) or c) port	folio (approx. 5 to 15 pages)
Allocat	tion of	places			
Additio	onal inf	ormation			
Worklo	bad				
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 36 (1)) 7. Did	aktik der Grundschule M	athematik		
Module	e appea	ars in			
First st	ate exa	-	g degree Grundschule	Didactics in I	s (2009) Mathematics (Primary School) (2009) cs in Mathematics (Primary School)

Module	e title				Abbreviation	
Metho	dology	of Teaching in Mathemat	tics (German Grundso	chule)	10-M-DMGS-092-m01	
Module coordinator				Module offered by		
Dean of Studies Mathematik (Mathematics)			atics)	Institute of Mathematics		
ECTS	Meth	od of grading	Only after succ. com	pl. of module(s)		
3	(not) successfully completed					
Duration Module level Other prerequisit			Other prerequisites	25		
1 semester undergraduate		undergraduate				
Conten	ts					
ly weak	k or par I learni	ticularly strong in mather ng environments as well	matics, dealing with h	neterogeneity in t	port for pupils who are particular- the classroom, organisation of sub- the classroom, also including mo-	
Intend	ed lear	ning outcomes				
in teac	hing m	•	t aspects in planning	and analysing th	ia für assessing media and their use he teaching of mathematics. He/She ess them.	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
S (no ir	nforma	tion on SWS (weekly cont	act hours) and cours	e language availa	able)	
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered —	if not every semester, information on whether	
		x. 45 minutes) or b) proje ffered: once a year, sumr		ges) or c) portfoli	io (approx. 5 to 15 pages)	
Allocat	ion of _l	olaces				
Additio	onal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination regulation	s for teaching-degree progra	mmes)		
§ 36 (1)) 7. Did	aktik der Grundschule Ma	athematik			
Module	e appea	ars in				
First sta First sta	First state examination for the teaching degree Grundschule Mathematics (2009) First state examination for the teaching degree Grundschule Didactics in Mathematics (Primary School) (2009) First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2009)					

Module title					Abbreviation		
E-Learn	ing an	d Blended Learning in M	athematics at school		10-M-DVHB-092-m	01	
Module coordinator				Module offered by			
Dean of Studies Mathematik (Mathematics)			atics)	Institute of Mathematics			
			Only after succ. com	only after succ. compl. of module(s)			
3	(not) s	successfully completed					
Duratio				uisites			
1 semester undergraduate			Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment 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 incor- porated 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 successful- ly completed, the lecturer will put the registration for assessment into ef-				
techniq	urse off Jues in	Fered by Virtuelle Hochsc e-learning and blended ning outcomes	-		acquainted with and	l reflects on	
The stu	dent is	acquainted with basic n otentials and limitations		and blended learnir	ng in teaching methe	ematics, as	
		number of weekly contact hours,		man)			
		tion on SWS (weekly con			e)		
		sessment (type, scope, langua le for bonus)	age — if other than German, e	examination offered — if no	t every semester, informat	ion on whether	
web-ba course)	•	oject assignments and te	ests (length/expendito	ure of time to be anr	nounced at the begin	nning of the	
Allocati	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
Teachir	ng cycl	e					
Referre	d to in	LPOI (examination regulation	s for teaching-degree progra	mmes)			
-A Grundsc	hulen Ma	thematics (2009)		nerated 26-Aug-2024 • exan schulen (Unterrichtsfach) Ma	-	page 23 / 30	



Module appears in

First state examination for the teaching degree Grundschule Mathematics (2009)

First state examination for the teaching degree Grundschule Didactics in Mathematics (Primary School) (2009) First state examination for the teaching degree Hauptschule Mathematics (2009)

First state examination for the teaching degree Hauptschule Didactics in Mathematics (Secondary School) (2009) First state examination for the teaching degree Realschule Mathematics (2009)

First state examination for the teaching degree Gymnasium Mathematics (2012)

First state examination for the teaching degree Gymnasium Mathematics (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2013)

First state examination for the teaching degree Mittelschule Mathematics (2013)

First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2013)



Module	e title				Abbreviation		
Basics in Arithmetics (virtual course)					10-M-VHBAri-092-r	n01	
				Module offered by			
Module coordinator Dean of Studies Mathematik (Mathematics)			natics)	Institute of Mathematics			
ECTS		od of grading					
			Only after succ. compl. of module(s)				
3 Duratio	(not) successfully completed						
Duration Module level 1 semester undergraduate		Other prerequisites Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment 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 incor- porated 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 successful- ly completed, the lecturer will put the registration for assessment into ef-					
Intende The stu	opics o ed lear i dent le	n teaching arithmetics ning outcomes earns basic topics in the	teaching of arithmetic	cs and the related m	athematical backgro		
		e is acquainted with th	*		ching arithmetic in s	chool.	
		number of weekly contact hours tion on SWS (weekly co			a)		
Methoo module is	d of ass creditab	sessment (type, scope, lang le for bonus) oject assignments and	age — if other than German,	examination offered — if no	ot every semester, informat		
course)							
Allocat		JIACES	_				
Additio	nal inf	ormation					
Worklo	ad						
 Teachin Referre		e LPO I (examination regulation	ns for teaching-degree progra	mmes)			
Module	e appea	nrs in					
LA Grundschulen Mathematics (2009)				enerated 26-Aug-2024 • exar schulen (Unterrichtsfach) Ma	-	page 25 / 30	

First state examination for the teaching degree Grundschule Mathematics (2009) First state examination for the teaching degree Grundschule Didactics in Mathematics (Primary School) (2009) First state examination for the teaching degree Hauptschule Mathematics (2009) First state examination for the teaching degree Hauptschule Didactics in Mathematics (Secondary School) (2009)

First state examination for the teaching degree Realschule Mathematics (2009)

First state examination for the teaching degree Gymnasium Mathematics (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2013)

First state examination for the teaching degree Mittelschule Mathematics (2013)

First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2013)



Mouut	e title	Abbreviation					
Basics	in Sch	ool Geometry (virtual cou	ırse)		10-M-VHBGeo-092-m01		
Module coordinator				Module offered by	ffered by		
Dean of Studies Mathematik (Mathema			atics)	Institute of Mathematics			
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
3	(not) s	successfully completed					
Duration Module level		Module level	Other prerequisites				
1 semester undergraduate		undergraduate	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment 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 incor- porated 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 successful- ly completed, the lecturer will put the registration for assessment into ef-				
					gistration for assessment into ef		
	on and o		fect at the end of the	e course.	hat are prerequisites for the sub-		
Revisio	on and o		fect at the end of the	e course.	-		
Revisio ject-sp metry.	on and o ecific a		fect at the end of the	e course.	hat are prerequisites for the sub-		
Revisio ject-sp metry. Intend The stu	on and o pecific a ed lear udent h	nd didactic courses (in p ning outcomes	fect at the end of the lamental topics in ele articular teaching de chool geometry, as ree	e course. mentary geometry tl grees Grundschule, quired for the study	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac-		
Revision ject-sp metry. Intend The stutics.He	on and o pecific a ed lear udent h e/She is	nd didactic courses (in p ning outcomes as basic knowledge of so	fect at the end of the lamental topics in ele articular teaching deg chool geometry, as re- ployment of new tech	e course. mentary geometry tl grees Grundschule, quired for the study mologies for teachin	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac-		
Revision ject-sp metry. Intend The stu tics.He Course	on and o becific a ed lear udent h e/She is es (type, r	nd didactic courses (in p ning outcomes as basic knowledge of so acquainted with the em	fect at the end of the lamental topics in ele articular teaching de chool geometry, as re- ployment of new tech language — if other than Ger	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school.		
Revision ject-sp metry. Intend The stutics.He Course Ü (no i Metho module i	on and o pecific a udent h e/She is es (type, r nforma d of ass is creditab	nd didactic courses (in p ning outcomes as basic knowledge of so acquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua ale for bonus)	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin man) e language available examination offered — if no	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e)		
Revision ject-sp metry. Intend The stutics.He Course Ü (no i Metho module i web-ba course	ed learn udent h e/She is es (type, r nforma d of assed ased pr e)	nd didactic courses (in p ning outcomes as basic knowledge of so acquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua ole for bonus) oject assignments and te	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin man) e language available examination offered — if no	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- ig geometry in school. e)		
Revision ject-sp metry. Intend The stutics.He Course Ü (no i Metho module i web-ba course	ed learn udent h secific a udent h secific a udent h secific a secific a sec	nd didactic courses (in p ning outcomes as basic knowledge of so acquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua ole for bonus) oject assignments and te	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin man) e language available examination offered — if no	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e)		
Revision ject-sp metry. Intend The stutics.He Course Ü (no i Metho module i web-ba course Allocat	ed learn udent h e/She is es (type, r nforma d of ass ased pr e) tion of p	nd didactic courses (in p ning outcomes as basic knowledge of so acquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua ole for bonus) oject assignments and te places	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin man) e language available examination offered — if no	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e)		
Revision ject-sp metry. Intend The stutics.He Course Ü (no i Metho module i web-ba course Allocat	ed learn udent h e/She is es (type, r nforma d of ass ased pr e) tion of p	nd didactic courses (in p ning outcomes as basic knowledge of so acquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua ole for bonus) oject assignments and te	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin man) e language available examination offered — if no	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e)		
Revision ject-sp metry. Intend The stutics.He Course Ü (no i Metho module i web-ba course Allocat Addition	ed learn udent h e/She is es (type, r nforma d of ass is creditab ased pr e) tion of p	nd didactic courses (in p ning outcomes as basic knowledge of so acquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua ole for bonus) oject assignments and te places	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin man) e language available examination offered — if no	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e)		
Revision ject-sp metry. Intend The stutics.He Course Ü (no i Metho module i web-ba course Allocat	ed learn udent h e/She is es (type, r nforma d of ass is creditab ased pr e) tion of p	nd didactic courses (in p ning outcomes as basic knowledge of so acquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua ole for bonus) oject assignments and te places	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin man) e language available examination offered — if no	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e)		
Revision ject-sp metry. Intend The stutics.He Course Ü (no i Metho module i web-ba course Allocat Addition Worklo	ed learn udent h e/She is es (type, r nforma d of ass is creditab ased pr i) tion of p onal inf	nd didactic courses (in p ning outcomes as basic knowledge of so a cquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua the for bonus) oject assignments and te places	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin man) e language available examination offered — if no	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e)		
Revision ject-sp metry. Intend The stutics.He Course Ü (no i Metho module i web-ba course Allocat Addition Worklo	ed learn udent h e/She is es (type, r nforma d of ass is creditab ased pr e) tion of p	nd didactic courses (in p ning outcomes as basic knowledge of so a cquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua the for bonus) oject assignments and te places	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours	e course. mentary geometry tl grees Grundschule, quired for the study nologies for teachin man) e language available examination offered — if no	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e)		
Revisic ject-sp metry. Intend The stu tics.He Course Ü (no i Metho module i web-ba course Allocat Additic Worklo Teachi 	ed learn udent h e/She is es (type, r nforma d of ase is creditab ased pr tion of p bonal inf	nd didactic courses (in p ning outcomes as basic knowledge of so a cquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua ele for bonus) oject assignments and te places formation	fect at the end of the lamental topics in ele articular teaching des chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours age — if other than German, of ests (length/expendit	e course.	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e)		
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Revisic ject-sp metry. Intend The stu tics.He Course Ü (no i Metho module i web-ba course Allocat Additic Worklc Referre 	ed learn udent h e/She is es (type, r nforma d of ase is creditab ased pr tion of p tion of p bonal inf pad	nd didactic courses (in p ning outcomes as basic knowledge of so a cquainted with the em number of weekly contact hours, tion on SWS (weekly con sessment (type, scope, langua ele for bonus) oject assignments and te places formation	fect at the end of the lamental topics in ele articular teaching deg chool geometry, as re- ployment of new tech language — if other than Ger tact hours) and cours age — if other than German, of ests (length/expendit	e course.	hat are prerequisites for the sub- Hauptschule, Realschule) in geo- of mathematics and its didac- og geometry in school. e) of every semester, information on whether nounced at the beginning of the		

Module appears in

First state examination for the teaching degree Grundschule Mathematics (2009) First state examination for the teaching degree Grundschule Didactics in Mathematics (Primary School) (2009) First state examination for the teaching degree Hauptschule Mathematics (2009) First state examination for the teaching degree Hauptschule Didactics in Mathematics (Secondary School) (2009) First state examination for the teaching degree Realschule Mathematics (2009)

First state examination for the teaching degree Gymnasium Mathematics (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2013)

First state examination for the teaching degree Mittelschule Mathematics (2013)

First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2013)





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 Grundschule may write this thesis in the subject Didaktik der Grundschule (Didactics of Grundschule), in the subject they selected as Unterrichtsfach (subject studied with a focus on the scientific discipline) or in the subject Erziehungswissenschaften (Educational Science). Pursuant to Section 29 Subsection 1 Sentence 2 LPO I, students may also choose to write an interdisciplinary thesis.

Module title					Abbreviation		
Thesis	in Mat	hematics (teaching degr	ee at German Grunds	chule)	10-M-HMGS-092-m01		
Module coordinator				Module offered by			
Dean o	f Studi	es Mathematik (Mathem	atics)	Institute of Mathematics			
ECTS	Meth	od of grading	Only after succ. con	ompl. of module(s)			
10				e, specific modules/module components as specified by			
Duratio	Duration Module level Ot		Other prerequisites	Other prerequisites			
1 seme	1 semester undergraduate						
Conten	ts						
		y researching and writing supervisor.	g on a topic in mather	natics or mathemati	cs didactics selected in consulta-		
Intend	ed lear	ning outcomes					
tained	during	•	aching degree progra	mme. He/She can w	pply the skills and methods ob- rite down the result of his/her		
Course	S (type, r	number of weekly contact hours,	language — if other than Ge	rman)			
no cou	rses as	signed					
		Sessment (type, scope, langua ole for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether		
Langua	ige of a	(approx. 250 to 300 hou ssessment: German, exc eaching degree program	eptions in accordanc	e with Section 29 St	ubsection 4 LPO I (examination re-		
Allocat							
			_				
Additio	onal inf	ormation					
Additio	nal inf	ormation on module dura	ation: 1 to 2 semester	s.			
Workload							
Teaching cycle							
Referre	ed to in	LPOI (examination regulation	is for teaching-degree progra	ammes)			
Module	e appea	ars in					
First sta	ate exa	mination for the teaching	g degree Grundschule	e Mathematics (2009	9)		