

Module Catalogue

for the Subject

Mathematics

as vertieft studiertes Fach (studied with a focus on the scientific discipline) with the degree "Erste Staatsprüfung für das Lehramt an Gymnasien"

> Examination regulations version: 2023 Responsible: Faculty of Mathematics and Computer Science Responsible: Institute of Mathematics

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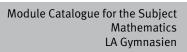
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Mathematics
LA Gymnasien

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The subject is divided into

section / sub-section	ECTS credits	starting page
Scientific Discipline	92	6
Compulsory Courses	46	7
Compulsory Electives	46	12
Subfield Basics in Linear Algebra	5	13
Subfield Basics in Analysis	5	16
Subfield Basics in Higher Analysis	5	19
Subfield Stochastics and Basics in Algebra and Applied Ma- thematics	11	22
Focus Basics in Algebra and Applied Mathematics	5	23
Focus Stochastics	6	27
Subfield Geometrie	10	30
Subfield Overview Algebra and Applied Mathematics	10	34
Teaching	10	37
Compulsory Courses	10	38
Paper	4	41
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Mathematics		44
Module Group Mathematics and Didactics of Mathematics		45
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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:

LASPO2015

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

31-Jan-2023 (2023-7)

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.

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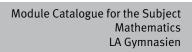




Scientific Discipline

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Compulsory Courses

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Module	Module title Abbreviation				
Introduction into Mathematical Thinking and Working for Teaching Degree 10-M-MDAL-152-mo1					10-M-MDAL-152-m01
(German Gymnasium)					
Module coordinator Module offered by					
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Methe	od of grading	Only after succ. con	npl. of module(s)	
5	(not)	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conten	nts				
					ion; basic concepts in mathema-
		and functions; basic tec	hniques and method	s for proving; mathe	matical writing.
		ning outcomes			
	asy mat				hematics. He/She is able to per- y and reasonably in written and
		number of weekly contact hours, l	anguage — if other than Ger	man)	
V (1) +	Ü (1) +	V (1) + Ü (1)			
		Sessment (type, scope, langua ole for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
		15 pages) ssessment: German and	/or English		
Allocat	tion of _l	places			
Additio	onal inf	ormation			
Additional information on module duration: includes block taught sessions prior to the beginning of the lecture period.					
Worklo	bad				
150 h					
Teachi	ng cycl	e			
Referred to in LPO I (examination regulations for teaching-degree programmes)					
§ 73 Nr. 2 (1 ECTS credits) § 73 Nr. 3 (2 ECTS credits) § 73 Nr. 5 (2 ECTS credits)					
Module appears in					
First state examination for the teaching degree Gymnasium Mathematics (2015) First state examination for the teaching degree Gymnasium Mathematics (2019) First state examination for the teaching degree Gymnasium Mathematics (2023)					

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Module title Abbreviation					
Overview Linear Algebra for Teaching Degree (German Gymnasium) 10-M-LNL-Ü-191-mo1				10-M-LNL-Ü-191-m01	
Module coordinator Module offered by		<u> </u>			
Dean of S	Studies Mathematik (Mathema	atics)	Institute of Mathem	natics	
ECTS N	Aethod of grading	Only after succ. con	npl. of module(s)		
13 r	numerical grade				
Duration	Module level	Other prerequisites			
2 semest	er undergraduate				
Contents	;				
	ants; eigenvalue theory; bilin			equations; theory of matrices and baces; diagonalisability and Jor-	
Intended	learning outcomes				
ply them knows at		n overview over the f etric background, is a	undamental notions	linear algebra and is able to ap- and methods of linear algebra, b each other and can present	
Courses	(type, number of weekly contact hours, l	language — if other than Ger	rman)		
$V(4) + V(4) + \ddot{U}(2)$					
Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)					
Language	oral examination of one candidate each (20 to 40 minutes) Language of assessment: German and/or English Assessment will have reference to the contents of modules 10-M-LNL1 and 10-M-LNL2.				
Allocation of places					
Addition	Additional information				
Workload	Workload				
390 h					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
§ 73 Nr. 2					
Module appears in					
	e examination for the teaching	,	-		
First state	First state examination for the teaching degree Gymnasium Mathematics (2023)				

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	data record Lehramt Gymnasien Mathematik - 2023	1

Module title Abbreviation						
Overview Analysis for Teaching Degree (German Gymnasium)				m)	10-M-ANL-Ü-191-m01	
Module coordinator				Module offered by	I	
Dean of	Studie	es Mathematik (Mathema	atics)	Institute of Mathem	natics	
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)		
16	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
2 semes	ster	undergraduate				
Content	s					
ries, dif	ferenti		n one variable, furthe		ivergence of sequences and se- erations, differential calculus	
Intende	d learı	ning outcomes				
them in	depen ckgrou	dently, He/She has an ov nd and geometric interpr	verview over the fund	amental notions and	analysis and is able to apply d concepts of analysis, their ana- express them adequately in writ-	
Courses	5 (type, n	number of weekly contact hours, l	anguage — if other than Ger	man)		
V (4) + \	/ (4) +	Ü (2)				
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether	
Languag	ge of a	ion of one candidate eacl ssessment: German and, <i>r</i> ill have reference to the o	or English	10-M-ANL1 and 10-M	I-ANL2.	
Allocati	on of p	olaces				
Additio	nal inf	ormation				
Workloa	ad					
480 h						
Teachin	g cycl	e				
Referred to in LPO I (examination regulations for teaching-degree programmes)						
§ 73 Nr. 1						
Module	appea	ars in				
		mination for the teaching		-		
First sta	First state examination for the teaching degree Gymnasium Mathematics (2023)					

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Module	Module title Abbreviation							
		erential Equations and Co	10-M-DFL-Ü-191-m01					
(Germa	(German Gymnasium)							
Modul	e coord	inator		Module offered by				
Dean o	of Studio	es Mathematik (Mathema	atics)	Institute of Mathem	natics			
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)				
12	nume	rical grade						
Duratio	on	Module level	Other prerequisites					
2 seme	ester	undergraduate						
Conten	nts							
rems, i erstraß continu	solated 8 produc uous de	l singularities, meromorp ct theorem and theorem o	hic functions and Lau of Mittag-Leffler, conf n initial values, syste	urent series, residue ormal maps; exister	grals and Cauchy integral theo- theorem and applications, Wei- nce and uniqueness theorem, tial equations, matrix exponenti-			
Intend	ed lear	ning outcomes	· · · · · · · · · · · · · · · · · · ·					
nary di ges of	fferenti thinkin		able to relate these co ifferent branches in n	oncepts with one an nathematics.	analysis and the theory of ordi- other, and realises the advanta-			
	V (4) +							
		-	ge — if other than German.	examination offered — if no	ot every semester, information on whether			
		le for bonus)	<u>.</u>					
Langua	age of a	ion of one candidate each ssessment: German and, /ill have reference to the	or English	10-M-DGLL and 10-M	1-FTHL.			
Allocat	tion of p	olaces						
Additio	onal inf	ormation						
Worklo	bad							
360 h								
Teaching cycle								
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)							
§731N	§ 73 Nr. 1							
Module	e appea	ars in						
		mination for the teaching mination for the teaching		-				

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Compulsory Electives

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Subfield Basics in Linear Algebra

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Module title Abbreviation						
Linear Algebra 1 for Teaching Degree (German Gymnasium) 10-M-LNL1-					10-M-LNL1-191-m01	
Module	e coord	inator		Module offered by		
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	atics	
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)		
5	(not) s	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Basic n termina		and structures; vector sp	aces, linear maps, sy	stems of linear equa	ations; theory of matrices and de-	
Intende	ed lear	ning outcomes				
ted wit	h the c	entral proof methods in li	near algebra and car	apply them to solve	ear algebra. He/She is acquain- e easy problems. He/She is able m adequately in written form.	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
Ü (2)						
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
exercis	es eacl			n exercises (approx.	10 exercise sheets with approx. 4	
Allocat						
Additio	onal inf	ormation				
Worklo	ad					
150 h						
Teachi	ng cycl	e				
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					
§731N	§ 73 Nr. 2					
Module appears in						
First state examination for the teaching degree Gymnasium Mathematics (2019) First state examination for the teaching degree Gymnasium Mathematics (2023)						

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Module	Module title Abbreviation					
Linear Algebra 2 for Teaching Degree (German Gymnasium)10-M-LNL2-191-m01						
Module	e coord	inator		Module offered by	<u>,</u>	
Dean o	fStudi	es Mathematik (Mathema	atics)	Institute of Mathem	natics	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
5	(not) s	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Eigenva	alue the	eory, bilinear forms, Eucl	idean and unitary veo	ctor spaces, diagona	lisation and Jordan normal form.	
Intend	ed lear	ning outcomes				
ted wit	h the co	entral proof methods in l	inear algebra and car	n apply them to solve	ear algebra. He/She is acquain- e easy problems. He/She is able m adequately in written form.	
Course	S (type, r	umber of weekly contact hours, I	anguage — if other than Ger	man)		
Ü (2)						
		essment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether	
exercis	es eacl			n exercises (approx.	10 exercise sheets with approx. 4	
Allocat						
Additio	nal inf	ormation				
Worklo	ad					
150 h						
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
§731N	lr. 2					
Module		irs in				
First sta	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2019)		
First sta	ate exa	mination for the teachinន្	g degree Gymnasium	Mathematics (2023)	1	



Subfield Basics in Analysis

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Module	Module title Abbreviation						
Analysis 1 for Teaching Degree (German Gymnasium)					10-M-ANL1-191-m01		
Module coordinator				Module offered by	<u> </u>		
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
5	(not) s	successfully completed					
Duratio	on	Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conten	ts						
ries; po	ower se		sics in differential ca		livergence of sequences and se- le; basics of integral calculus in		
Intende	ed lear	ning outcomes					
central	proof	nethods in analysis and o	can employ them to s	solve easy problems	He/She is acquainted with the . He/she is able to perform easy ts precisely and clearly in written		
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)			
Ü (2)	-						
		Sessment (type, scope, langua Ile for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether		
exercis	es eacl			n exercises (approx.	10 exercise sheets with approx. 4		
Allocat							
Additio	onal inf	ormation					
Worklo	ad						
150 h	_						
Teaching cycle							
Referred to in LPO I (examination regulations for teaching-degree programmes)							
§ 73 Nr. 1							
Module	e appea	ars in					
		mination for the teaching		-			
First state examination for the teaching degree Gymnasium Mathematics (2023)							

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Module title					Abbreviation
Analysis 2 for Teaching Degree (German Gymnasium)				10-M-ANL2-191-m01	
Module coordinator		Module offered by	l		
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
5	(not) s	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	its				
		gical considerations, bas on theorem.	sics in differential cal	culus in several vari	ables, inverse function theorem,
Intend	ed lear	ning outcomes			
central	proof	methods in analysis and	can employ them to s	solve easy problems	He/She is acquainted with the . He/she is able to perform easy ts precisely and clearly in written
Course	S (type, r	number of weekly contact hours, I	anguage — if other than Gei	rman)	
Ü (2)					
		sessment (type, scope, langua ole for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
exercis	es eacl			n exercises (approx.	10 exercise sheets with approx. 4
Allocat	ion of j	places			
Additic	onal inf	ormation			
Worklo	ad				
150 h					
Teachi	ng cycl	e			
	d to in	LPO I (examination regulation	s for teaching-degree progra	ammes)	
Referre					
§73∣N		ars in			

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Subfield Basics in Higher Analysis

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Modul	e title				Abbreviation
Ordina	ry Diffe	rential Equations for Tea	ching Degree (Germa	an Gymnasium)	10-M-DGLL-191-m01
Module coordinator Module offered b		/			
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathe	matics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
5	(not) s	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conten	nts				
		uniqueness theorem; co tions; matrix exponentia			nitial values; systems of linear dif- higher order.
Intend	ed lear	ning outcomes			
		acquainted with the fun /she is able to apply the			theory of ordinary differential
Course	es (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)	
Ü (2)					
module is a) writt	s creditab ten exa	le for bonus) mination (approx. 90 to 1	80 minutes, usually	chosen) or	not every semester, information on whether
c) oral Langua	examin	nation of one candidate e ation in groups (groups o ssessment: German and bonus	of 2, 10 to 15 minutes		
Allocat	tion of _l	olaces			
Additio	onal inf	ormation			
Worklo	bad				
150 h					
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination regulation	s for teaching-degree progra	immes)	
<u></u> §731N	Vr. 1				
Module	e appea	ars in			
		mination for the teachinន			
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (202	3)

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Module	e title				Abbreviation
Introdu	uctory (Complex Analysis for Tea	ching Degree (Germa	in Gymnasium)	10-M-FTHL-191-m01
Module coordinator Module offered b		/			
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathe	matics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
5	(not) s	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conten	nts				
rems, i	solated		hic functions and La	urent series, residu	egrals and Cauchy integral theo- e theorem and applications, Wei-
Intend	ed lear	ning outcomes			
		acquainted with the fun ethods to practical probl	•	nd methods in com	plex analysis. He/she is able to
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
Ü (2)					
		sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if	not every semester, information on whether
b) oral c) oral Langua	examir examin	mination (approx. 90 to 1 lation of one candidate e ation in groups (groups o ssessment: German and bonus	ach (15 to 30 minutes of 2, 10 to 15 minutes	s) or	
Allocat	tion of _l	olaces			
Additio	onal inf	ormation			
Worklo	ad				
150 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§731N	Vr. 1				
	e appea	urs in			
		mination for the teaching mination for the teaching			

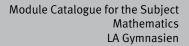
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Subfield Stochastics and Basics in Algebra and Applied Mathematics

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Focus Basics in Algebra and Applied Mathematics

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Module	e title				Abbreviation
Introdu	ictory A	Algebra for Teaching Deg	ree (German Gymnas	sium)	10-M-ALGL-191-m01
Module	e coord	inator		Module offered by	
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Methe	od of grading	Only after succ. com	npl. of module(s)	
5	(not)	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
phism metric Topics Topics	theorei groups in ring in num	ms, solvability, group ope , dihedral groups). theory (particularly ideal ber theory (particularly E	erations, Sylow theor s, divisibility, polynoi uclidean algorithm, F	ems; examples: cycl mial rings, irreducibi ermat's little theore	m, Euler's theorem, Chinese re-
		rem, residue class rings a ning outcomes	and their unit groups,	quadratic number ri	ings).
			contial mothods and	hasis notions in alg	ebra. He/She is acquainted with
		ncepts in this field, and i			
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)	
Ü (2)					
		S essment (type, scope, langua ole for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
b) oral c) oral	examir examin Ige of a	mination (approx. 90 to 1 nation of one candidate e nation in groups (groups o ssessment: German and bonus	ach (15 to 30 minutes of 2, 10 to 15 minutes	s) or	
Allocat	ion of	places			
Additio	onal inf	ormation			
Worklo	ad				
150 h					
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination regulation	s for teaching-degree progra	mmes)	
\$731N	lr. 2 (2	ECTS credits), § 73 Nr. 5	(3 ECTS credits)		
Module	e appea	ars in			
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2019)	
First sta	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2023)	

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Module	Module title Abbreviation						
Applie	d Algeb	ora for Teaching Degree (German Gymnasium)		10-M-AALL-191-m01		
Module coordinator				Module offered by			
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics		
ECTS	Meth	od of grading	Only after succ. con	pl. of module(s)			
5		successfully completed		•			
Duratio		Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conten	its						
theory,	solvat	theory (particularly algel bility of equations, cycloto of algebra and number th	omic fields, finite fiel	ds).	constructions, basics in Galois omputer algebra).		
Intend	ed lear	ning outcomes					
	ainted				ebra and its applications. He/She idamental proof methods inde-		
Course	S (type, 1	number of weekly contact hours, l	anguage — if other than Ger	man)			
Ü (2)							
		Sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether		
b) oral c) oral	examir examir age of a	mination (approx. 90 to 1 nation of one candidate e nation in groups (groups o ssessment: German and, bonus	ach (15 to 30 minutes of 2, 10 to 15 minutes	s) or			
Allocat	tion of	places					
Additio	onal inf	ormation					
Worklo	ad						
150 h							
Teachi	ng cycl	e					
Referre	ed to in	LPOI (examination regulation	s for teaching-degree progra	mmes)			
§73ⅠN	§ 73 Nr. 2 (2 ECTS credits), § 73 Nr. 5 (3 ECTS credits)						
Module	e appea	ars in					
		mination for the teaching mination for the teaching		-			

Modul	e title				Abbreviation
Numer	rical Ma	thematics 1 for Teaching	Degree (German Gyr	nnasium)	10-M-NUL1-191-m01
Module coordinator Mod			Module offere	d by	
Dean c	of Studi	es Mathematik (Mathema	atics)	Institute of Ma	thematics
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)
5	(not) s	successfully completed			
Durati	on	Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conter	nts				
					ar equations and systems of equati-
ons, in	iterpola	tion with polynomials, sp	lines and trigonome	tric functions, n	umerical integration.
	-	ning outcomes			
		acquainted with the fun oblems and knows abou			numerical mathematics, applies them
Course	es (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)	
Ü (2)					
module i a) writt b) oral c) oral	is creditab ten exal examir examin	ile for bonus) mination (approx. 90 to 1 nation of one candidate e ation in groups (groups of ssessment: German and,	80 minutes, usually ach (15 to 30 minutes of 2, 10 to 15 minutes	chosen) or 5) or	— if not every semester, information on whether
	able for				
Alloca	tion of _l	olaces			
Additio	onal inf	ormation			
Worklo	oad				
150 h	_				
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
<u></u> § 73	Vr. 2 (2	ECTS credits), § 73 Nr. 5	(3 ECTS credits)		
Modul	e appea	ars in			
		mination for the teaching			-
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2	2023)

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Focus Stochastics

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	data record Lehramt Gymnasien Mathematik - 2023	1

Module title					Abbreviation	
Stocha	Stochastics for Teaching Degree (German Gymnasium) 10-M-STL-191-m01					
Module coordinator				Module offered by		
Dean of	fStudie	es Mathematik (Mathema	atics)	Institute of Mathem	atics	
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
6		rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme		undergraduate				
Conten						
assump discrete condition ce and	otions: e distril onal pr correla	basic notions of descript butions, elements of com obability, stochastic inde	ive statistics, discret binatorics, principle ependence, common ms, law of the large n	e probability spaces of inclusion and exc distributions, expec umbers, central limi	sation and discussion of basic , random variables, important lusion, multistage experiments, ted value and variance, covarian- it theorem, confidence intervals	
Intende	ed learr	ning outcomes				
	n Gymn	asium. He/She is able to			ics, as required for teaching at and handle the concept of stati-	
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
V (4) +	Ü (2)					
		e ssment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
b) oral c) oral e	examin examin ge of a	nination (approx. 90 to 1 ation of one candidate e ation in groups (groups c ssessment: German and, bonus	ach (15 to 30 minutes of 2, 10 to 15 minutes			
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
180 h						
Teachir	ıg cycl	9				
		LPO I (examination regulations	s for teaching-degree progra	mmes)		
§ 73 Nr. 3						
Module appears in First state examination for the teaching degree Gymnasium Mathematics (2019)						
		gram Mathematics (2023)		mathematics (2019)		
		mination for the teaching		Mathematics (2023)		

		÷ (
LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 28 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module	Module title Abbreviation						
Stocha	stics 1	for Teaching Degree (Ge	rman Gymnasium)		10-M-STOL-191-m01		
Module coordinator				Module offered b	y		
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathe	ematics		
ECTS	Meth	od of grading	Only after succ. con	pl. of module(s)			
6	nume	rical grade					
Duratio	on	Module level	Other prerequisites				
1 seme	ester	undergraduate					
Conten	nts						
continu chastic varianc	uous di indep ce, limit	stributions: normal distri endence, elementary cor t theorems: law of large r	ibution, random varia nditional probability, o	ble, distribution fu characteristics of c	easure and integration theory, inction, product measures and sto- listributions: expected value and		
Intend	ed lear	ning outcomes					
		acquainted with fundan lems and knows about th			stics, applies these methods to		
Course	S (type, r	number of weekly contact hours,	language — if other than Ger	man)			
V (4) +	Ü (2)						
		sessment (type, scope, langua le for bonus)	age — if other than German, o	examination offered — if	not every semester, information on whether		
b) oral c) oral Langua	examir examin	mination (approx. 90 to a nation of one candidate e nation in groups (groups o ssessment: German and bonus	each (15 to 30 minutes of 2, 10 to 15 minutes				
Allocat	tion of _l	places					
Additio	onal inf	ormation					
Worklo	oad						
180 h							
Teachi	ng cycl	e					
Referre	ed to in	LPOI (examination regulation	s for teaching-degree progra	mmes)			
§73ⅠN	۱r. 3						
Modul	e appea	ars in					
First st	ate exa	mination for the teaching	a dograo Gumpacium	Math anation (and)		

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	data record Lehramt Gymnasien Mathematik - 2023	





Subfield Geometrie

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title			Abbreviation	
Elemer	ntary Go	eometry for Teaching De	gree (German Gymna	sium)	10-M-EGEL-191-m01
Module	e coord	inator		Module offered by	l
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
10	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	Its				
Congru	ience g ss and	eometry, transformation ruler constructions, sele	geometry, similarity g	geometry, elementar	idean geometry with discussion. y analytic geometry, geometric ted topics in affine and/or pro-
Intend	ed lear	ning outcomes			
thods, tuition	so that and str	he/she masters the bas	ic notions of geometr	y. He realizes the m	working as well as of proof me- utual stimulation of geometric in- imagination, and implicitly learn
Course	S (type, r	umber of weekly contact hours,	language — if other than Ger	rman)	
V (4) +	Ü (2)				
		s essment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
b) oral c) oral	examir examin age of a	nination (approx. 90 to 1 ation of one candidate e ation in groups (groups o ssessment: German and bonus	each (15 to 30 minutes of 2, 10 to 15 minutes		
Allocat	ion of p	olaces			
Additio	onal inf	ormation			
Workla	ad				
300 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§731N	lr. 4				
Module		irs in			
exchan	ige prog	mination for the teaching gram Mathematics (2023 mination for the teaching)	-	

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	data record Lehramt Gymnasien Mathematik - 2023	

Module title					Abbreviation	
Introdu	uctory [Differential Geometry for	Teaching Degree (Ge	rman Gymnasium)	10-M-DGEL-191-m01	
Modul	e coord	inator		Module offered by		
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics	
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
10	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	1 semester undergraduate					
Conten	Its					
particu	lar) in I		ure of hypersurfaces,		bmanifolds (hypersurfaces in ies, main theorem on local sur-	
Intend	ed lear	ning outcomes				
	ed with				ferential geometry. He/She is ac iental proof methods indepen-	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
V (4) +	Ü (2)					
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether	
b) oral c) oral Langua Assess quent s	examir examin age of a	er	ach (15 to 30 minutes of 2, 10 to 15 minutes /or English	per candidate)	es are offered and in the subse-	
Allocat	ion of j	olaces				
Additic	onal inf	ormation				
Worklo	ad					
300 h						
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
§731N	۱r. 4					
	e appea	urs in				
First st	ate exa	mination for the teaching		-		
FIRST ST	ate exa	mination for the teaching	g degree Gymnasium	iniathematics (2023))	

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title				Abbreviation
Introdu	ictory F	Projective Geometry for T	eaching Degree (Ger	man Gymnasium)	10-M-PGEL-191-m01
Module coordinator				Module offered by	·
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
10	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
		l affine planes, projective , dualities and polarities			s, fundamental theorems for pro-
Intende	ed lear	ning outcomes			
		acquainted with the fun ethods to practical probl		nd methods of proje	ective geometry. He/she is able to
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)	
V (4) +	Ü (2)				
		sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
b) oral c) oral Langua	examir examin ige of a ment o semest	er	ach (15 to 30 minute: of 2, 10 to 15 minutes /or English	per candidate)	es are offered and in the subse-
Allocat	ion of J	olaces			
Additio	nal inf	ormation	-		
Worklo	ad				
300 h					
Teachi	ng cycl	e			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§73∣N	lr. 4				
Module	e appea	ars in			
		mination for the teachinន mination for the teachinន		-	

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Subfield Overview Algebra and Applied Mathematics

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Module	e title	<u>.</u>			Abbreviation	
Overview Algebra and Applied Algebra for Teaching Degree (German G				(German Gymnasi-		
um)						
Module coordinator			Module offered by			
Dean of Studies Mathematik (Mathematics)			Institute of Mathem	atics		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
10	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
2 seme	ster	undergraduate				
Conten	ts					
phism	theorer				b- and factorgroups, ison ic groups, alternating and	
Topics	in ring	theory (particularly idea	ls, divisibility, polynoi	mial rings, irreducibi	lity of polynomials).	
		ber theory (particularly I em, residue class rings			n, Euler's theorem, Chine ngs).	ese re-
•		theory (particularly alge ility of equations, cyclot			constructions, basics in	Galois
Applica	ations o	f algebra and number th	neory (e.g., coding the	ory, cryptography, co	omputer algebra).	
Intende	ed learr	ning outcomes	_			
thods,	so that		ic notions of algebra		working as well as of pro and can apply them to ele	
Course	S (type, n	umber of weekly contact hours,	language — if other than Ger	rman)		
V (4) +	V (4) +	Ü (2)				
		essment (type, scope, langu le for bonus)	age — if other than German, o	examination offered — if no	t every semester, information on	whether
Langua	ige of a	on of one candidate eac ssessment: German and ill have reference to the	l/or English	10-M-ALGL und 10-M	-AALL	
Allocat	ion of p	olaces				
Additio	nal info	ormation				
Worklo	ad					
300 h						
Teachi	ng cycl	9				
Referre	d to in	LPO I (examination regulation	ns for teaching-degree progra	mmes)		
<u>§ 73</u> I N	lr. 2 (5 l	ECTS credits), § 73 Nr. g	5 (5 ECTS credits)			
Module	e appea	rs in				
First sta	ate exa	mination for the teachin	g degree Gymnasium	Mathematics (2019)		
First sta	ate exa	mination for the teachin	g degree Gymnasium	Mathematics (2023)		
LA Gymnas	ien Mathe	matics (2023)	-	• generated 19-Apr-2025 • e		se 35 / 103
			data record Le	ehramt Gymnasien Mathemat	IK - 2023	

Module	e title				Abbreviation
	-	ebra and Numerical M	athematics 1 for Teachir	ng Degree (German	10-M-ANUL-Ü-191-m01
Gymna Module		linator		Modulo offered by	
Module coordinator Dean of Studies Mathematik (Mathematics)			Module offered by		
	1			Institute of Mathem	latics
ECTS	1	od of grading	Only after succ. con	npl. of module(s)	
10		rical grade			
Duratio	-	Module level	Other prerequisites		
2 seme		undergraduate			
phism metric Topics	theore groups in ring	ms, solvability, group , dihedral groups). theory (particularly id	operations, Sylow theor eals, divisibility, polyno	ems; examples: cycl mial rings, irreducibi	ib- and factorgroups, isomor- ic groups, alternating and sym- ility of polynomials). m, Euler's theorem, Chinese re-
mainde Topics equatio	er theo in num	rem, residue class ring nerical mathematics: S d systems of equation	gs and their unit groups, Solution of systems of lin	quadratic number ri near equations and c	
Intend	ed lear	ning outcomes			
She is	able to		s with one another, and r		and numerical mathematics. He/ ges of thinking across the bor-
Course	S (type, 1	number of weekly contact ho	urs, language — if other than Gei	rman)	
V (4) +	V (4) +	Ü (2)			
		Sessment (type, scope, lan ole for bonus)	nguage — if other than German,	examination offered — if no	ot every semester, information on whether
Langua	age of a	issessment: German a	each (20 to 40 minutes) and/or English he contents of modules	10-M-ALGL und 10-M	1-NUL1
Allocat	tion of	places			
Additio	onal inf	ormation			
Worklo	ad				
300 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regula	tions for teaching-degree progra	ammes)	
	-	ECTS credits), § 73 N			
	e appea		· ·		
Moaul					
	ate exa		ning degree Gymnasium	Mathematics (2019)	

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	data record Lehramt Gymnasien Mathematik - 2023	

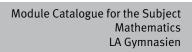




Teaching (10 ECTS credits)

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Compulsory Courses

(10 ECTS credits)

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Module	e title				Abbreviation
Didacti	ics of N	Aathematics: Algebra and	l Analysis (German G	ymnasium)	10-M-DGY1-232-m01
Module coordinator Module offered by				by	
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Math	ematics
ECTS	Meth	od of grading	Only after succ. com	pl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
2 seme	ster	undergraduate			
Conten	ts				
kundar	stufe I)		stufe II) as well as dis		g the examples of algebra (Se- ilities of implementation in the
Intende	ed lear	ning outcomes			
of algel ceptior matics,	bra in S n of ma , maste	Sekundarstufe I and analy thematical topics, He/Sh ers different strategies for	ysis in sekundarstufe e knows different asp teaching and learnin	II) and is able to to bects of planning a lg und can assess	echniques (in particular in the fields take into account the students'per- and analysing teaching of mathe- them.
Course	S (type, 1	number of weekly contact hours, l	anguage — if other than Ger	man)	
V (2) +	Ü (2) +	V (2) + Ü (2)			
		sessment (type, scope, langua ole for bonus)	ge — if other than German, e	examination offered — i	f not every semester, information on whether
cises e didacti	ach fro cs of a ige of a	m the didactics of algebr nalysis) Issessment: German and	a and approx. 10 exe		xercise sheets with approx. 3 exer- approx. 3 exercises each from the
Allocat	ion of	places			
Additio	onal inf	ormation			
Worklo	ad				
180 h					
Teaching cycle					
Referre	ed to in	LPOI (examination regulation	s for teaching-degree progra	mmes)	
§73∣N	lr. 6				
Module	e appea	ars in			
First sta	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (202	23)

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	data record Lehramt Gymnasien Mathematik - 2023	

Additional information Workload 120 h	le title	e			Abbreviation
Dean of Studies Mathematik (Mathematics) Institute of Mathematics ECTS Method of grading Only after succ. compl. of module(s) 4 numerical grade Duration Module level Other prerequisites 1 semester undergraduate Contents Discussion of basic topics in mathematics didactics for Gymnasium using the example of geometry (Set stufe) as well as discussion of possibilities of implementation in the classroom, also including modern logies. Intended learning outcomes The student is acquainted with basic mathematical ways of thinking and working techniques (in particulifeld of geometry in Sekundarstufe i) and is able to take into account the students' perception of mathematics, masters or strategies for teaching and learning und can assess them. Courses (type, number of weekly contact hours, language – if other than German, examination offered – if not every semester, information omodule is creditable for bonus) a) written examination (6o to 120 minutes) or 0 b) oral examination of no candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus Additional information	tics of Ma	f Mathematics: Geometry	r (German Gymnasium)		10-M-DGY2-191-m01
ECTS Method of grading Only after succ. compl. of module(s) 4 numerical grade Duration Module level Other prerequisites 1 semester undergraduate Contents Discussion of basic topics in mathematics didactics for Gymnasium using the example of geometry (Sel stufe I) as well as discussion of possibilities of implementation in the classroom, also including moderr logics. Intended learning outcomes The student is acquainted with basic mathematical ways of thinking and working techniques (in particu field of geometry in Sekundarstufe I) and is able to take into account the students' perception of mather topics, He/She knows important aspects of planning and analysing teaching of mathematics, masters or strategies for teaching and learning und can assess them. Courses (type, number of weekly contact hours, language – if other than German) V (2) ± Ü (2) Method of assessment (type, scope, language – if other than German) V (2) ± Ü (2) Method of assessment (type, scope, language – if other than German) V (2) ± Ü (2) Method of assessment: (groups of 2, 10 to 15 minutes per candidate) Janguage of assessment: (groups of 2, 10 to 15 minutes per candidate) Language of asssessment: German and/or Eng	Module coordinator			Module offered by	
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1 semester undergraduate Contents	numeri	merical grade			
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Additional information Workload 120 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 l Nr. 6 Module appears in	l examina l examina lage of as:	mination of one candidate nination in groups (group of assessment: German ar	e each (approx. 30 min s of 2, 10 to 15 minutes		
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120 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 l Nr. 6 Module appears in	ional info	information			
120 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 l Nr. 6 Module appears in					
Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 Nr. 6 Module appears in	load				
Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 Nr. 6 Module appears in					
§ 73 Nr. 6 Module appears in	ing cycle	ycle			
§ 73 Nr. 6 Module appears in	_				
Module appears in	red to in L	in LPO I (examination regulation	ons for teaching-degree progra	ammes)	
First state examination for the teaching degree Gymnasium Mathematics (2019)					
exchange program Mathematics (2023) First state examination for the teaching degree Gymnasium Mathematics (2023)	nge progr	program Mathematics (20	23)		

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Paper

(4 ECTS credits)

Students studying for a teaching degree Gymnasium must complete a practical training in didactics and teaching methodology (studienbegleitendes fachdidaktisches Praktikum) which refers to one of the subjects they selected as vertieft studiertes Fach (subject studied with a focus on the scientific discipline) pursuant to Section 34 Subsection 1 No. 4 LPO I (examination regulations for teaching-degree programmes). The obligatory accompanying tutorial is offered by the respective subject. The ECTS credits obtained are counted in the subject Erziehungswissenschaften pursuant to Section 10 Subsection 3 LASPO (general academic and examination regulations for teaching-degree programms).

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Module title			Abbreviation		
Practical Training in Classroom Teaching including Theory (German Gymn um)			(German Gymnasi-	10-M-SFDPGY-152-m01	
Module coordinator				Module offered by	
Dean of	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	atics
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
4	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
focus o specific ject-spe res wha dactic a cordand practice	n the s teach ecific te at he/s aspects ce with e, also	cientific discipline) or Dia ing models, examples an echniques. In the univers he has learned during his s. In this context, the cour applicable guidelines ar	daktikfach (subject st d projects in differen ity course accompany s/her teaching placen rse discusses selecte nd curricula. The cour cts of school pedago	udied with a focus of t grades, the module ying the placement, nent and explores a d practical aspects of se focuses on recen gy and learning psyce	htsfach (subject studied with a on teaching methodology). Using e introduces the student to sub- the student reflects and structu- dditional subject-specific and di- of teaching mathematics in ac- t developments in classroom chology that can support the suc-
Intende	ed lear	ning outcomes			
able to cationa	teach i I syste	the relevant topics for dif	ferent forms, and can nect ideas from schoo	critically reflect the ol pedagogy and lea	l organising teaching. He/She is recent developments in the edu- rning psychology with didactical
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
P (o) + S (2)					
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
b) term Conten regulati	a) presentation (30 to 45 minutes) with position paper (1 to 2 pages) or b) term paper (10 to 15 pages) Contents and duration of placement as specified in Section 34 Subsection 1 Sentence 1 No. 4 LPO I (examination regulations for teaching-degree programmes); participation in mandatory teaching practice, completion of all set tasks as specified by placement school.				
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Workload					
120 h					
Teaching cycle					
	Referred to in LPO I (examination regulations for teaching-degree programmes)				
§ 34 1					
Module appears in First state examination for the teaching degree Gymnasium Educational Science (2015)					
riist sta	ate exa	mination for the teaching	, degree Gymnasium	Euucational Science	(2015)

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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".

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Mathematics (ECTS credits)

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

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Module Group Mathematics and Didactics of Mathematics

(ECTS credits)

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Module	e title				Abbreviation	
School	Mathe	matics from a Higher P	erspective		10-M-SCH-152-m01	
Module	e coord	nator		Module offered by	L	
Dean o	f Studie	es Mathematik (Mathe	matics)	Institute of Mathematics		
ECTS		od of grading	Only after succ. con			
5	<u> </u>	uccessfully completed				
<u>)</u> Duratio	<u> </u>	Module level	Other prerequisites			
		undergraduate				
Conten						• •
			ol mathematics with re n school and university		ation into wider theo	ories and
Intende	ed learr	ing outcomes				
	vanced	mathematical theories	student gains insight in s. He/She is able to dis			
Course	S (type, n	umber of weekly contact hour	s, language — if other than Gei	rman)		
V (2) +	Ü (2)					
Method	d of ass	essment (type, scope, lang	uage — if other than German,	examination offered — if no	ot every semester, informati	ion on whether
		le for bonus)				
c) proje Langua	ect worl ige of a	(10 to 15 pages) or ((15 to 25 hours) ssessment: German ar ffered: In the semester	d/or English in which the course is	offered and in the su	ıbsequent semester	
Allocat	ion of p	olaces				
Additio	onal info	ormation				
Worklo	ad					
150 h						
Teachi	ng cvcl	2				
	0 . /	-				
Referre	d to in	LPO I (examination regulation	ons for teaching-degree progra	mmes)		
§ 22 § 22 § 22 § 22	Nr. 1 h) Nr. 2 f)					
Module	e appea	rs in				
		gree (1 major) Mathema	_			
		gree (1 major) Mathema		、 、		
	-		tional Mathematics (20	-)	
			ng degree Grundschule ng degree Realschule N		J	
			ng degree Gymnasium			
			ng degree Mittelschule			
		gree (1 major) Mathema				
			ng degree Gymnasium	Mathematics (2019)		
A Gumnas	ion Matha	matics (2023)		g ● generated 19-Apr-2025 ● e	vam reg	nago (6 / 400
A Gymnas	ien matrie	1000 (2023)		ehramt Gymnasien Mathemat	-	page 46 / 103



First state examination for the teaching degree Mittelschule Mathematics (2020 (Prüfungsordnungsversion 2015))

Bachelor's degree (1 major) Mathematical Physics (2020) Bachelor's degree (1 major) Mathematical Data Science (2022) exchange program Mathematics (2023) First state examination for the teaching degree Gymnasium Mathematics (2023) Bachelor's degree (1 major) Mathematics (2023)

Bachelor's degree (1 major) Mathematical Physics (2024)

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	data record Lehramt Gymnasien Mathematik - 2023	

	e title				Abbreviation	
Computers in Mathematical Teaching					10-M-DCMU-152-m01	
Module	e coord	inator		Module offered by		
Dean o	f Studi	es Mathematik (Mathem	atics)	Institute of Mathen	natics	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
3	(not)	successfully completed				
Duratio	on	Module level	Other prerequisites	i		
1 seme	ster	undergraduate				
Conten	Its					
Discus puter t		possible ways to use co	mputers in teaching n	nathematics as well	as discussion of common co	om-
Intend	ed lear	ning outcomes				
		acquainted with basic s with the potential and			iters in the teaching of math	ema-
	S (type, r	number of weekly contact hours,	language — if other than Ge	rman)		
V (2)						
		sessment (type, scope, langu Ile for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whe	ther
	-	15 pages)				
		ffered: Every two years,	winter semester			
Allocat	ion of _l	olaces				
Additio	onal inf	ormation				
Additic	onal inf	ormation				
Additic Worklo		ormation				
		ormation				
 Worklo	ad					
 Worklo 90 h Teachi	oad ng cycl	e				
 Worklo 90 h Teachi Referre	ng cycl ed to in		ns for teaching-degree progra	ammes)		
 Worklo 90 h Teachi Referre § 22 II	ng cycl ed to in Nr. 2 f)	e	ns for teaching-degree progra	ammes)		
 Worklo 90 h Teachi Referre § 22 § 22	ng cycl ed to in Nr. 2 f) Nr. 1 h)	e	ns for teaching-degree progra	ammes)		
 Worklo 90 h Teachi Referre § 22 II	ng cycl ed to in Nr. 2 f) Nr. 1 h) Nr. 3 f)	e LPOI (examination regulatio	ns for teaching-degree progra	ammes)		
 90 h Teachi § 22 § 22 § 22 § 22 Module	ng cycl ed to in Nr. 2 f) Nr. 1 h) Nr. 3 f) e appea	e LPOI (examination regulatio				
 90 h Teachi § 22 II § 22 II § 22 II first st First st	ed to in Nr. 2 f) Nr. 3 f) e appea ate exa ate exa	e LPOI (examination regulatio ars in mination for the teachin mination for the teachin	g degree Realschule I g degree Gymnasium	Mathematics (2015) Mathematics (2015)		
 90 h Teachi Referre § 22 II § 22 II § 22 II § 22 II First st First st First st (2015)	ed to in Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa	e LPOI (examination regulatio ars in mination for the teachin mination for the teachin mination for the teachin	g degree Realschule I g degree Gymnasium g degree Sonderpäda	Mathematics (2015) Mathematics (2015) Igogik Didactics in M	athematics (Middle School)	
 90 h Teachi Referre § 22 II § 22 II § 22 II First st First st First st (2015) First st	ed to in Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa	e LPOI (examination regulatio ars in mination for the teachin mination for the teachin mination for the teachin mination for the teachin mination for the teachin	g degree Realschule I g degree Gymnasium g degree Sonderpäda g degree Mittelschule	Mathematics (2015) Mathematics (2015) gogik Didactics in M Mathematics (2015	athematics (Middle School))	
 90 h Teachi Referre § 22 II § 22 II § 22 II First st First st First st (2015) First st First st	ed to in Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa	e LPOI (examination regulation mination for the teachin mination for the teachin	g degree Realschule <i>I</i> g degree Gymnasium g degree Sonderpäda g degree Mittelschule g degree Mittelschule	Mathematics (2015) Mathematics (2015) gogik Didactics in M Mathematics (2015) Didactics in Mather	athematics (Middle School)) natics (Middle School) (2015	
 90 h Teachi Referre § 22 ll § 22 ll § 22 ll § 22 ll First st First st First st (2015) First st First st First st First st First st First st First st	ng cycl ed to in Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa	e LPOI (examination regulation ars in mination for the teachin mination for the teachin	g degree Realschule <i>I</i> g degree Gymnasium g degree Sonderpäda g degree Mittelschule g degree Mittelschule g degree Gymnasium	Mathematics (2015) Mathematics (2015) gogik Didactics in M Mathematics (2015) Didactics in Mather Mathematics (2019)	athematics (Middle School)) natics (Middle School) (2015	
 90 h Teachi Referre § 22 II § 22 II § 22 II Modulo First st First st (2015) First st First st	ng cycl ed to in Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa	e LPOI (examination regulation ars in mination for the teaching mination for the teaching	g degree Realschule / g degree Gymnasium g degree Sonderpäda g degree Mittelschule g degree Mittelschule g degree Gymnasium g degree Mittelschule	Mathematics (2015) Mathematics (2015) gogik Didactics in M Mathematics (2015 Didactics in Mather Mathematics (2019) Mathematics (2020	lathematics (Middle School)) matics (Middle School) (2015	
 90 h Teachi Referre § 22 ll § 22 ll § 22 ll § 22 ll First st First st First st (2015) First st First st First st First st First st First st (2015)) First st (2015)) First st (2015)) First st (Prüfur First st	ng cycl ed to in Nr. 2 f) Nr. 3 f) e appea ate exa ate exa	e LPOI (examination regulation mination for the teaching mination for th	g degree Realschule <i>I</i> g degree Gymnasium g degree Sonderpäda g degree Mittelschule g degree Mittelschule g degree Gymnasium g degree Mittelschule g degree Mittelschule g degree Sonderpäda	Mathematics (2015) Mathematics (2015) gogik Didactics in M Mathematics (2015) Didactics in Mather Mathematics (2019) Mathematics (2020 Didactics in Mather	athematics (Middle School)) matics (Middle School) (2015) (Prüfungsordnungsversion	



exchange program Mathematics (2023) First state examination for the teaching degree Gymnasium Mathematics (2023)

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title				Abbreviation
Introdu	uction t	o Hands-on Mathematics	5		10-M-PRM1-152-m01
Module	e coord	inator		Module offered by	
Dean o	Dean of Studies Mathematik (Mathematics)		atics)	Institute of Mathen	natics
ECTS	Meth	od of grading	Only after succ. compl. of module(s)		
3	(not)	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conten	nts	~			
tical pł table to	hase, th opic, el	ne students formulate the	subject-specific and project and draw up	didactic requireme a project plan. This	erest), workshops. In the theore- nts of the topic, search for a sui- is done in groups with students other's work.
Intend	ed lear	ning outcomes			
The stu	udent is	able to select a suitable	mathematical topic f	or a school project	and elaborate it.
	es (type, 1	number of weekly contact hours, l	anguage — if other than Ger	man)	
S (2)					
		sessment (type, scope, langua ole for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
		15 pages) ffered: Every two years, v	vinter semester		
Allocat	tion of	places			
Additio	onal inf	ormation			
 Workla	ad				
90 h					
	ing cycl	e			
Referre	ed to in	LPOI (examination regulations	s for teaching-degree progra	mmes)	
§ 22					
§ 22					
Module	e appea	ars in			
		mination for the teaching			
		mination for the teaching			1
				Mathematics (- · ·	
		gram Mathematics (2023)		Mathematics (2019))

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title				Abbreviation
		se Hands-on Mathematic	CS		10-M-PRM2-152-m01
Module	Module coordinator			Module offered by	<u> </u>
	Dean of Studies Mathematik (Mathematics)		atics)	Institute of Mathem	natics
ECTS	1	od of grading	Only after succ. com		
3		successfully completed	/		
Duratio		Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
beiten) tical ph plannir	, Plusk nase th ng and	urse (additional courses e students prepare the im implementation.	for the in-depth study	y of areas of special	ays, school term papers (Fachar- interest), workshops. In the prac- upils and afterwards reflect the
Intende	ed lear	ning outcomes			
		able to perform a school cts of project planning ar			bic. He/She is acquainted with ess critically.
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
P (2)					
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
		ng up a project plan (5 to ffered: Every two years, s		cal implementation	with pupils
Allocat	ion of _l	olaces			
Additio	nal inf	ormation			
Worklo	ad				
90 h					
Teachi	ng cycl	e			
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)	
§ 22 § 22					
Module	e appea	ars in			
First sta First sta	ate exa ate exa	mination for the teaching mination for the teaching mination for the teaching gram Mathematics (2023)	g degree Gymnasium g degree Gymnasium	Mathematics (2015)	
		mination for the teaching		Mathematics (2023)	

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	data record Lehramt Gymnasien Mathematik - 2023	

Module title				Abbreviation	
Hands-	Hands-on Seminar Mathematics				10-M-PRA-152-m01
Module	e coord	inator		Module offered by	
Dean of Studies Mathematik (Mathematics)			atics)	Institute of Mathem	atics
ECTS	Metho	od of grading	Only after succ. compl. of module(s)		
3	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
tics" (g ject, sc terest):	eometr hool te formul ic for cl	y, algebra, stochastics, a rm paper (Facharbeit) or lation of subject-related a	nalytic geometry, and Pluskurs (additional and didactic requirem	alysis) or a topic rela course for the in-dep nents, search for an a	e a topic in "classical mathema- ted to a school workshop, pro- oth study of areas of special in- appropriate topic, preparation of l be supervised and reflected by
Intende	ed learı	ning outcomes			
					atics in school. He/She is ac- e to critically reflect the process.
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
S (2)					
		essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
		ng up a project plan (10 t ffered: Every two years, s			
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
90 h					
Teachir	ıg cycl	e			
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)	
§ 22	Nr. 3 f)				
Module	e appea	irs in			
First sta exchan	ate exa ge pros	mination for the teaching mination for the teaching gram Mathematics (2023) mination for the teaching	degree Gymnasium)	Mathematics (2019)	
			,		

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 52 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module	title				Abbreviation	
Selecte	d Topic	s in History of Mathem	natics		10-M-GES-152-m01	
Module	Coordi	nator		Module offered by		
		nator es Mathematik (Mathen	antice)	Institute of Mathematics		
		•	E .		Idlics	
ECTS		d of grading	Only after succ. con	npl. of module(s)		
5	<u> </u>	uccessfully completed				
Duratio	n	Module level	Other prerequisites			
1 semes	ster	undergraduate				
Conten	ts					
the fund	dament	cultural development a als of mathematics, in ematics in modern soc	particular in its relatio			
Intende	ed learn	ing outcomes				
tical the audiend	eories a ce.	cted examples, the stu- and their social relevan	ce. He/she is able to p	resent mathematica		
		umber of weekly contact hours	, language — if other than Gei	rman)		
V (2) + l						
		essment (type, scope, lang e for bonus)	uage — if other than German,	examination offered — if no	t every semester, informati	on on whether
c) proje Langua	ect work ge of as ment of	(10 to 15 pages) or (15 to 25 hours) ssessment: German an fered: In the semester		offered and in the su	ıbsequent semester	
Allocal		laces				
Additio	nal info	ormation				
Additio	natinit	mation				
Worklo	ad					
150 h	<u>au</u>					
Teachir						
	is cycle					
reaction		2				
	d 4 - 1 1					
 Referre		LPO I (examination regulation	ons for teaching-degree progra	mmes)		
 Referre § 22 N	Nr. 3 f)	LPO I (examination regulation	ns for teaching-degree progra	immes)		
 Referre § 22 N Module	Nr. 3 f) appea	LPO I (examination regulation reg		mmes)		
 Referre § 22 N Module Bachelo	Nr. 3 f) appea or's deg	LPOI (examination regulation rs in gree (1 major) Mathema	tics (2015)	immes)		
 Referre § 22 II N Module Bachelo Bachelo	Nr. 3 f) appea or's deg or's deg	LPO I (examination regulation rs in gree (1 major) Mathema gree (1 major) Mathema	tics (2015) tical Physics (2015)			
 Referre § 22 II N Module Bachelo Bachelo Bachelo	Nr. 3 f) e appea or's deg or's deg or's deg	LPO I (examination regulation rs in gree (1 major) Mathema gree (1 major) Mathema gree (1 major) Computa	tics (2015) tical Physics (2015) tional Mathematics (20	015)		
 Referre § 22 II N Module Bachelo Bachelo First sta	Nr. 3 f) e appea or's deg or's deg or's deg ate exar	LPO I (examination regulation rs in gree (1 major) Mathema gree (1 major) Mathema gree (1 major) Computa mination for the teachin	tics (2015) tical Physics (2015) tional Mathematics (20 1g degree Gymnasium	015)		
 Referre § 22 II N Module Bachelo Bachelo First sta Bachelo	Nr. 3 f) e appea or's deg or's deg or's deg ate exar or's deg	LPO I (examination regulation rs in gree (1 major) Mathema gree (1 major) Mathema gree (1 major) Computa nination for the teachin gree (1 major) Mathema	tics (2015) tical Physics (2015) tional Mathematics (20 1g degree Gymnasium tical Physics (2016)	015) Mathematics (2015)		
 Referre § 22 II N Module Bachelo Bachelo First sta Bachelo First sta	Nr. 3 f) e appea or's deg or's deg ate exar or's deg ate exar	LPO I (examination regulation rs in gree (1 major) Mathema gree (1 major) Mathema gree (1 major) Computa mination for the teachin	tics (2015) tical Physics (2015) tional Mathematics (20 1g degree Gymnasium tical Physics (2016) 1g degree Gymnasium	015) Mathematics (2015)		
 Referre § 22 II N Module Bachelo Bachelo First sta Bachelo First sta Bachelo	Vr. 3 f) appea or's deg or's deg or's deg ate exar or's deg ate exar or's deg or's deg or's deg	LPO I (examination regulation rs in gree (1 major) Mathema gree (1 major) Mathema gree (1 major) Computa nination for the teaching gree (1 major) Mathema mination for the teaching	tics (2015) tical Physics (2015) tional Mathematics (20 ng degree Gymnasium tical Physics (2016) ng degree Gymnasium tical Physics (2020)	015) Mathematics (2015) Mathematics (2019)		
First sta Bachelo First sta Bachelo Bachelo Bachelo Bachelo Bachelo Bachelo	Vr. 3 f) e appea or's deg or's deg or's deg or's deg ate exar or's deg ate exar or's deg or's deg	LPO I (examination regulation rs in gree (1 major) Mathema gree (1 major) Mathema gree (1 major) Computa nination for the teaching gree (1 major) Mathema nination for the teaching gree (1 major) Mathema	tics (2015) tical Physics (2015) tional Mathematics (20 ng degree Gymnasium tical Physics (2016) ng degree Gymnasium tical Physics (2020) tical Data Science (20	015) Mathematics (2015) Mathematics (2019)		
Referre § 22 II N Module Bachelo Bachelo First sta Bachelo First sta Bachelo Bachelo exchan	Vr. 3 f) e appea or's deg or's deg or's deg or's deg ate exar or's deg ate exar or's deg or's deg ge prog	LPO I (examination regulation rs in gree (1 major) Mathema gree (1 major) Mathema gree (1 major) Computa mination for the teachin gree (1 major) Mathema gree (1 major) Mathema gree (1 major) Mathema	tics (2015) tical Physics (2015) tional Mathematics (20 ng degree Gymnasium tical Physics (2016) ng degree Gymnasium tical Physics (2020) tical Data Science (20 3)	015) Mathematics (2015) Mathematics (2019) 22)		





Bachelor's degree (1 major) Mathematics (2023) Bachelor's degree (1 major) Mathematical Physics (2024)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 54 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module title					Abbreviation		
Mathematical Writing					10-M-MSC-152-m01		
Module	e coord	inator		Module offered by			
Dean of	f Studi	es Mathematik (Mather	natics)	tics) Institute of Mathematics			
ECTS Method of grading			Only after succ. com	pl. of module(s)			
5	(not) s	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 semester undergraduate							
Conten	Contents						
vers the compre	e whole hensiv	good and bad mathem e range of mathematica re works such as Bache ciency but also didactio	l texts from short proof lor's or Master's these	s and the formulatio	on of theorems and d	efinitions to	
Intende	ed lear	ning outcomes					
		able to formulate math ctures and conventions					
		number of weekly contact hours		· · ·			
V (2) +				-			
Method	d of ass	sessment (type, scope, lang le for bonus)	uage — if other than German, e	examination offered — if no	t every semester, informati	on on whether	
c) proje Langua	ect wor ge of a ment o	(10 to 15 pages) or k (15 to 25 hours) ssessment: German an ffered: In the semester		offered and in the su	ıbsequent semester		
Allocal		Jaces					
 Additio	nalinf	ormation					
Additio	iiat iiii						
 Worklo							
	au						
150 h							
Teachir	ig cyci	e					
		LPO I (examination regulation	ons for teaching-degree progra	mmes)			
§ 22	_	•					
Module							
Bachelor's degree (1 major) Mathematics (2015)							
Bachelor's degree (1 major) Mathematical Physics (2015) Bachelor's degree (1 major) Computational Mathematics (2015)							
First state examination for the teaching degree Gymnasium Mathematics (2015)							
Bachelor's degree (1 major) Mathematical Physics (2016)							
		mination for the teachi	•	Mathematics (2019)			
Bachel	or's de	gree (1 major) Mathema	atical Physics (2020)				
Bachel	Bachelor's degree (1 major) Mathematical Data Science (2022)						
		gram Mathematics (202	-				
First sta	ate exa	mination for the teachi	ng degree Gymnasium	Mathematics (2023)			
LA Gymnasi	ien Mathe	matics (2023)	-	• generated 19-Apr-2025 • e hramt Gymnasien Mathemat	-	page 55 / 103	





Bachelor's degree (1 major) Mathematics (2023) Bachelor's degree (1 major) Mathematical Physics (2024)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 56 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module title Abbreviation					Abbreviation	
Semina	ar Math	iematics			10-M-SEM-152-m01	
Module	e coord	inator		Module offered by		
Dean of Studies Mathematik (Mathematics)			atics)	Institute of Mathem	natics	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites	i		
1 seme	ster	undergraduate				
Contents						
A selec	ted top	oic in mathematics.				
Intend	ed lear	ning outcomes				
of a giv	ven topi				sters elaboration and structuring /She is able to participate active	
Course	S (type, r	number of weekly contact hours,	language — if other than Ge	rman)		
S (2)						
		sessment (type, scope, langu le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether	
•		o minutes)				
		ssessment: German and	l/or English			
Allocat	ion of _l	places				
			_			
Additio	onal inf	ormation				
Worklo	ad		_			
150 h			_			
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulatio	ns for teaching-degree progra	ammes)		
§ 22	Nr. 3 f)					
Module	e appea	ars in				
Bachel	or's de	gree (1 major) Mathema	tics (2015)			
Bachelor's degree (1 major) Computational Mathematics (2015)						
		mination for the teachin				
	First state examination for the teaching degree Gymnasium Mathematics (2019)					
		gree (1 major) Mathema		22)		
		gram Mathematics (202				
		mination for the teachin		Mathematics (2023)		
Bachel	or's de	gree (1 major) Mathema	tics (2023)			

Module title				Abbreviation		
Compu	tationa	ll Mathematics			10-M-COM-152-m01	-
Module	e coord	inator		Module offered by		
Dean o	f Studi	es Mathematik (Mathem	natics)	Institute of Mathem	natics	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
4	(not)	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	Contents					
merica and 10 [.]	Introduction to modern mathematical software for symbolic computation (e. g. Mathematica or Maple) and nu- merical computation (e. g. Matlab) to supplement the basic modules in analysis and linear algebra (10-M-ANA-G and 10-M-LNA-G). Computer-based solution of problems in linear algebra, geometry, analysis, in particular diffe- rential and integral calculus; visualisation of functions.					
Intende	ed lear	ning outcomes				
		earns the use of advance cation to solve mathem		cal software package	es, and is able to ass	sess their
Course	S (type, r	number of weekly contact hours	, language — if other than Ge	rman)		
V (1) +	Ü (2)					
		Sessment (type, scope, langu le for bonus)	age — if other than German,	examination offered — if no	t every semester, informati	on on whether
project Langua	in the age of a	form of programming ex ssessment: German and ffered: Once a year, win	d/or English	25 hours)		
Allocat	ion of _l	olaces				
Additio	onal inf	ormation				
Worklo	ad					
120 h						
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulatio	ns for teaching-degree progra	ammes)		
§ 22	Nr. 3 f)					
Module	e appea	ars in				
		gree (1 major) Mathema				
		gree (1 major) Physics (2 gree (1 major) Napostru	-	-)		
Bachelor's degree (1 major) Nanostructure Technology (2015) Bachelor's degree (1 major) Economathematics (2015)						
Bachelor's degree (1 major) Athematical Physics (2015)						
Bachelor's degree (1 major) Computational Mathematics (2015)						
Bachelor's degree (1 major) Functional Materials (2015)						
First state examination for the teaching degree Gymnasium Mathematics (2015)						
Bachelor's degree (1 major) Mathematical Physics (2016)						
		gree (1 major) Economa mination for the teachir		Mathematics (2010)		
		gree (1 major) Physics (2	,	mathematics (2019)		
				a generated to Arraces	Yam rog	page 59 / 100
en gynnas	nen matrie	matics (2023)		g • generated 19-Apr-2025 • e ehramt Gymnasien Mathemat	-	page 58 / 103

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Bachelor's degree (1 major) Nanostructure Technology (2020) Bachelor's degree (1 major) Mathematical Physics (2020) Bachelor's degree (1 major) Functional Materials (2021) Bachelor's degree (1 major) Quantum Technology (2021) Bachelor's degree (1 major) Economathematics (2022) Bachelor's degree (1 major) Economathematics (2022) Bachelor's degree (1 major) Mathematical Data Science (2022) exchange program Mathematics (2023) First state examination for the teaching degree Gymnasium Mathematics (2023) Bachelor's degree (1 major) Economathematics (2023) Bachelor's degree (1 major) Functional Materials (2024) Bachelor's degree (1 major) Functional Materials (2025) Bachelor's degree (1 major) Economathematics (2025)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 59 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module title					Abbreviation	
Progra	Programming course for students of Mathematics and other subjects			r subjects	10-M-PRG-152-m01	
Module		instar		Modulo offered by		
				Module offered by		
Dean of Studies Mathematik (Mathematics)				Institute of Mathem	latics	
ECTS		od of grading	Only after succ. com	ipl. of module(s)		
3		successfully completed				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Basics	of a mo	odern programming lang	guage (e.g.C).			
Intende	ed learı	ning outcomes				
The stu	dent is	able to work independ	ently on small program	nming exercises and	standard programm	ing problems
in math			, , ,	5	1 0	01
Course	S (type, n	umber of weekly contact hours	, language — if other than Ger	man)		
P (2)						
	l of ass	sessment (type, scope, langu	lage — if other than German.	examination offered — if no	ot every semester. informati	on on whether
		le for bonus)			, , , , , , , , , , , , , , , , , , , ,	
project	in the	form of programming e>	ercises (approx. 20 to	25 hours)		
		ssessment: German an				
		ffered: Once a year, sur	nmer semester			
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
90 h						
Teachir	ng cycl	e				
Referre	d to in	LPO I (examination regulation	ns for teaching-degree progra	mmes)		
§ 22						
Module		urs in				
		gree (1 major) Mathema	tics (2015)			
		gree (1 major) Mathema gree (1 major) Physics (2	-			
		gree (1 major) Nanostru	-	5)		
		gree (1 major) Economa		-		
		gree (1 major) Mathema				
	Bachelor's degree (1 major) Computational Mathematics (2015)					
Bachelor's degree (1 major) Functional Materials (2015)						
First state examination for the teaching degree Gymnasium Mathematics (2015)						
Bachelor's degree (1 major) Mathematical Physics (2016)						
Bachelor's degree (1 major) Economathematics (2017) First state examination for the teaching degree Gymnasium Mathematics (2019)						
	Bachelor's degree (1 major) Physics (2020)					
	Bachelor's degree (1 major) Nanostructure Technology (2020)					
		gree (1 major) Mathema				
		gree (1 major) Functiona	-			
LA Gymnasi	ien Mathe	matics (2023)	JMU Würzburg	• generated 19-Apr-2025 • e	exam. reg.	page 60 / 103
			data record Le	ehramt Gymnasien Mathemat	tik - 2023	

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Bachelor's degree (1 major) Quantum Technology (2021) Bachelor's degree (1 major) Economathematics (2021) Bachelor's degree (1 major) Economathematics (2022) Bachelor's degree (1 major) Mathematical Data Science (2022) exchange program Mathematics (2023) First state examination for the teaching degree Gymnasium Mathematics (2023) Bachelor's degree (1 major) Mathematics (2023) Bachelor's degree (1 major) Economathematics (2023) Bachelor's degree (1 major) Mathematical Physics (2024) Bachelor's degree (1 major) Economathematics (2024) Bachelor's degree (1 major) Functional Materials (2025) Bachelor's degree (1 major) Economathematics (2025)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 61 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title				Abbreviation	
Exercis	se tutor	or proof-reading in Ma	thematics		10-M-TuKo-152-mo	L
Module	e coord	inator		Module offered by		
		es Mathematik (Mathe	matics)	Institute of Mathematics		
ECTS	1	od of grading	Only after succ. con			
5		successfully completed				
Duratio		Module level	Other prerequisites			
1 seme		undergraduate				
Conten		undergraduate				
		ding homework for on	e of the basic courses i	n the Bachelor's or t	eaching degree prog	rammes un-
		-	urer or exercise superv		eaching degree prog	iannies un-
		ning outcomes				
		-	quisition of mathemati	cal skills and knowle	edge. He/She helps	to identify
			cises and to find possi			
Course	S (type, r	number of weekly contact hour	s, language — if other than Ger	man)		
T (o)						
Metho	d of ass	sessment (type, scope, lang	uage — if other than German, o	examination offered — if no	t every semester, informat	ion on whether
		le for bonus)				
			orrecting work by supe	rvising lecturers or e	xercise supervisors	(1 to 2 tea-
		approx. 5 pieces of co	recting work)			
Allocat	ion of p	olaces				
Additic	onal inf	ormation				
Please	direct a	application to teaching	coordinator Mathemat	ics, he/she will sele	ct participants.	
Worklo	ad					
150 h						
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulati	ons for teaching-degree progra	mmes)		
§ 22						
Module		urs in				
		gree (1 major) Mathem	atics (2015)			
		gree (1 major) Economa				
Bachel	or's de	gree (1 major) Mathem	atical Physics (2015)			
			tional Mathematics (20	-		
			ng degree Gymnasium	Mathematics (2015)		
		gree (1 major) Mathem gree (1 major) Economi				
Bachelor's degree (1 major) Economathematics (2017) First state examination for the teaching degree Gumpasium Mathematics (2010)						
	First state examination for the teaching degree Gymnasium Mathematics (2019) Bachelor's degree (1 major) Mathematical Physics (2020)					
First sta		gree (1 maior) Mathem	atical Physics (2020)			
First sta Bachel	or's de	gree (1 major) Mathem gree (1 major) Economa				
First sta Bachel Bachel	or's de or's de		athematics (2021)			
First sta Bachel Bachel Bachel Bachel	or's de or's de or's de or's de	gree (1 major) Economa gree (1 major) Economa gree (1 major) Mathem	athematics (2021) athematics (2022) atical Data Science (20	22)		
First sta Bachel Bachel Bachel Bachel exchan	or's de or's de or's de or's de or's de	gree (1 major) Economa gree (1 major) Economa gree (1 major) Mathem gram Mathematics (20	athematics (2021) athematics (2022) atical Data Science (20 23)			
First sta Bachel Bachel Bachel Bachel exchan First sta	or's des or's des or's des or's des oge pros ate exa	gree (1 major) Economa gree (1 major) Economa gree (1 major) Mathem gram Mathematics (20 mination for the teach	athematics (2021) athematics (2022) atical Data Science (20 23) ng degree Gymnasium			
First sta Bachel Bachel Bachel Bachel exchan First sta Bachel	or's de or's de or's de or's de age pros ate exa or's de	gree (1 major) Economa gree (1 major) Economa gree (1 major) Mathem gram Mathematics (20	athematics (2021) athematics (2022) atical Data Science (20 23) ng degree Gymnasium atics (2023)			

Julius-Maximilians-UNIVERSITÄT WÜRZBURG



Bachelor's degree (1 major) Economathematics (2023) Bachelor's degree (1 major) Mathematical Physics (2024) Bachelor's degree (1 major) Economathematics (2024) Bachelor's degree (1 major) Economathematics (2025)

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	data record Lehramt Gymnasien Mathematik - 2023	

coord Studie Meth c	o Functional Analysis inator es Mathematik (Mathema od of grading successfully completed	itics) Only after succ. com	Module offered by	10-M-FAN-152-m01	
Studio Metho (not) s n	es Mathematik (Mathema od of grading		Module offered by		
Metho (not) s n	od of grading				
(not) s n		Only after succ. com	Institute of Mathem	atics	
n	successfully completed		pl. of module(s)		
	successfully completed				
ster	Module level	Other prerequisites			
	undergraduate				
ts					
space	s and Hilbert spaces, bou	unded operators, prin	ciples of functional	analysis.	
d learı	ning outcomes				
ls, is al pplica	ble to apply methods fror bility of the theory to othe	n linear algebra and a er branches of mathe	analysis to functiona matics.		
	number of weekly contact hours, l	anguage — if other than Ger	man)		
		ge — if other than German, e	examination offered — if no	t every semester, information on whether	
ge of a ole for	ssessment: German and/ bonus		per canuluate)		
ion of p	Diaces				
natini					
ad					
ig cvcl	e				
3 29 50	-				
d to in	LPOI (examination regulations	for teaching-degree progra	mmes)		
۲. 3 f)					
	irs in				
Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Mathematical Physics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) First state examination for the teaching degree Gymnasium Mathematics (2015) Bachelor's degree (1 major) Mathematical Physics (2016) First state examination for the teaching degree Gymnasium Mathematics (2019) First state examination for the teaching degree Gymnasium Mathematics (2023)					
	d learn dent ki s, is al pplica s (type, r J (2) l of ass creditab en examin ge of a ble for on of p nal inf ad d to in kr. 3 f) appea or's dep or's dep	Idearning outcomes dent knows the fundamental coss, is able to apply methods from pplicability of the theory to other of the teaching or the teaching of the theory to other of the teaching the examination for the teaching the examination	d learning outcomes dent knows the fundamental concepts and methods s, is able to apply methods from linear algebra and a pplicability of the theory to other branches of mathe s (type, number of weekly contact hours, language – if other than Gerr g (2) of assessment (type, scope, language – if other than Gerran, ecreditable for bonus) en examination (approx. 90 to 180 minutes, usually caramination of one candidate each (15 to 30 minutes) examination in groups (groups of 2, 10 to 15 minutes) ge of assessment: German and/or English ole for bonus fon of places mal information ad ad ad ad bit to in LPO I (examination regulations for teaching-degree programing of the theory) Mathematics (2015) or's degree (1 major) Mathematics (2015) or's degree (1 major) Computational Mathematics (2015) or's degree (1 major) Computational Mathematics (2016) ite examination for the teaching degree Gymnasium for's degree (1 major) Mathematical Physics (2016) ite examination for the teaching degree Gymnasium for's degree (1 major) Mathematical Physics (2016)	dent knows the fundamental concepts and methods of functional analysis, is able to apply methods from linear algebra and analysis to functional pplicability of the theory to other branches of mathematics. (type, number of weekly contact hours, language – if other than German) (2) (a) (b) assessment (type, scope, language – if other than German, examination offered – if no creditable for bonus) en examination (approx. 90 to 180 minutes, usually chosen) or examination of one candidate each (15 to 30 minutes) or examination in groups (groups of 2, 10 to 15 minutes per candidate) ge of assessment: German and/or English ole for bonus ion of places intermation ad information ad information ad information ad information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information information informa	

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record Lehramt Gymnasien Mathematik - 2023	page 64 / 103	
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Module title				Abbreviation	
ons Re	search			10-M-ORS-152-m01	
coordi	inator		Module offered by		
Studie	es Mathematik (Mathema	atics)	Institute of Mathem	natics	
Metho	od of grading	Only after succ. com	pl. of module(s)		
(not) s	successfully completed				
n	Module level	Other prerequisites			
ster	undergraduate				
S					
rogran	nming, duality theory, tra	nsport problems, int	egral linear program	ming, graph theoretic problems.	
d learr	ning outcomes				
ing ma	ny practical problems es	pecially in economics			
i (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
Ĵ (2)					
		ge — if other than German, e	examination offered — if no	ot every semester, information on whether	
 a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 					
on of p	olaces				
nal info	ormation				
ad					
g cycle	9				
Referred to in LPO I (examination regulations for teaching-degree programmes)					
§ 22 Nr. 3 f)					
Module appears in					
-		-			
-			-		
	-		-		
	-		-		
	ons Re coordi Studie Metho (not) s n ster dent is ing ma as, bot dent is is is is is is is is is is is is is i		ons Research coordinator Studies Mathematik (Mathematics) Method of grading Only after succ. com (not) successfully completed n Module level Other prerequisites ster undergraduate rs trogramming, duality theory, transport problems, interesting outcomes dent is acquainted with the fundamental methods in ing many practical problems especially in economics ins, both theoretically and numerically. Grassessment (type, scope, language — if other than German, ecreditable for bonus) en examination (approx. 90 to 180 minutes, usually or examination in groups (groups of 2, 10 to 15 minutes is cole for bonus) en examination in groups (groups of 2, 10 to 15 minutes is cole for bonus) on of places and information and information appears in or's degree (1 major) Mathematics (2015) or 's degree (1 major) Computational Mathematics (2015) or 's degree (1 major) Computational Mathematics (2015)	Module offered by studies Mathematik (Mathematics) Institute of Mathematik (Mathematics) Method of grading Only after succ. compl. of module(s) (not) successfully completed n Module level Other prerequisites iter undergraduate rs rogramming, duality theory, transport problems, integral linear program dearning outcomes deart is acquainted with the fundamental methods in operations researcling many practical problems especially in economics. He/She is able to is, both theoretically and numerically. (type, number of weekly contact hours, language – if other than German, examination offered – if no creditable for bonus) en examination (approx. 90 to 180 minutes, usually chosen) or examination of one candidate each (15 to 30 minutes) or xamination in groups (groups of 2, 10 to 15 minutes per candidate) ge of assessment (serman and/or English ment offered. In the semester in which the course is offered and in the suble for bonus on of places	

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 65 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Modul	e title				Abbreviation
Advan	ced Did	actics of Mathematics (G	erman Gymnasium)		10-M-DVGY-191-m01
Modul	Nodule coordinator Module offered by			<u>.</u>	
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
2	(not) s	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conter	nts				
lar mat	themati		analyses, contempo		unt different aspects, in particu- nathematics didactics as well as
Intend	ed lear	ning outcomes			
		able to discuss central t idering subject-specific,			cs in high school (German Gym-
Course	S (type, r	umber of weekly contact hours, l	anguage — if other than Gei	rman)	
S (2)					
		eessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
Langua	age of a	50 minutes) ssessment: German ffered: Once a year, sum	mer term		
	tion of _l				
Additio	onal inf	ormation			
Worklo	ad				
60 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 22	Nr. 3 f)				
Modul	e appea	ars in			
exchar	nge prog	mination for the teaching gram Mathematics (2023 mination for the teaching)	-	

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 66 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title				Abbreviation
Review	Course	e for Teaching Degree (G	erman Gymnasium)		10-M-REPL-191-m01
Module	e coord	inator		Module offered by	
Dean o	Dean of Studies Mathematik (Mathematics) Institute of Mathematics		atics		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
3	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
					ysis; linear algebra, algebra and ng past state examination questi-
Intende	ed lear	ning outcomes			
		as advanced knowledge §73 (2), and is able to a			regulations for teaching degree nation.
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Gei	rman)	
S (2)					
		sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	t every semester, information on whether
b) proje	ect (10	k. 45 minutes) or to 15 pages) ssessment: German and,	/or English		
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
90 h					
Teachi	ng cycl	e			
Referre	d to in	LPOI (examination regulation	s for teaching-degree progra	ammes)	
§ 22	Nr. 3 f)				
Module	appea	urs in			
First sta	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2019)	
First sta	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2023)	

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 67 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title				Abbreviation
Mathe	matica	l Aspects of Modern Cryp	tography		10-M-KRY-232-m01
Module	e coord	linator		Module offered by	1
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
5	(not)	successfully completed			
Duratio	on .	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts		<u> </u>		
		s of elementary number th zation algorithm, post-qu			ematics of quantum computers,
Intend	ed lear	ning outcomes			
		nows the essential metho ptosystems, and comput			mber theory, their application in tum computers.
Course	S (type,	number of weekly contact hours, l	anguage — if other than Ge	rman)	
V (3) +	Ü (1)				
		sessment (type, scope, langua ble for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
b) oral c) oral Langua	examin examir age of a ment c	mination (approx. 60 to 1 nation of one candidate e nation in groups (groups c assessment: German and, offered: in the semester in bonus	ach (15 to 30 minute of 2, 10 to 15 minutes /or English	s) or per candidate)	ubsequent semester
Allocat	ion of	places			
Additio	onal inf	ormation			
Worklo	ad				
150 h					
Teachi	ng cycl	e			
	•		· · · · · · · · · · · · · · · · · · ·		
Referre	ed to in	LPO I (examination regulations	s for teaching-degree progra	ammes)	
§ 22	Nr. 3 f)		•		
Modul	_	ars in			
		gram Mathematics (2023))		
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2023))
		gree (1 major) Mathemati			
Bachel	or's de	gree (1 major) Mathemati	cal Physics (2024)		

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	Nodule title Abbreviation			Abbreviation	
Didacti	Didactics of Mathematics: Stochastics 10-M-DGYSTO-232-m01				10-M-DGYSTO-232-m01
Module coordinator				Module offered by	
			_	Institute of Mathem	atics
ECTS Method of grading Only after succ. compl. of module(s)					
3 (not) successfully completed					
Duratio	on	Module level	Iodule level Other prerequisites		
1 seme	ster				
Conten	ts				
Intende	ed learn	ning outcomes			
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V (2)					
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
b) oral c) oral Assess	 a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (15 to 20 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Assessment offered: in the semester in which the course is offered and in the subsequent semester creditable for bonus 				
Allocation of places					
Additio	Additional information				
Worklo	ad				
90 h					
Teachi	ng cycl	e			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 22	Nr. 3 f)				
Module	e appea	irs in			
		gram Mathematics (2023) mination for the teaching		Mathematics (2023)	

Module	Module title Abbreviation			Abbreviation	
Didacti	Didactics of Mathematics: Analytic Geometry 10-M-DGYAGE-232-m01				
Module coordinator Module offered by					
				Institute of Mathem	atics
ECTS	ECTS Method of grading Only after succ. compl. of module(s)				
3 (not) successfully completed					
Duratio	Duration Module level Other prerequisites				
1 semes	ster				
Conten	ts				
Intende	ed leari	ning outcomes			
	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V (2)					
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)				t every semester, information on whether	
		mination (approx. 60 to 9 ation of one candidate e			
c) oral e	examin	ation in groups (groups o	of 2, approx. 10 minut	tes per candidate)	
		ffered: in the semester in	which the course is	offered and in the su	ibsequent semester
creditable for bonus Allocation of places					
Additio	Additional information				
Worklo	ad				
90 h					
Teachir	ng cycl	e			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 22 N	Nr. 3 f)				
Module	appea	ars in			
		gram Mathematics (2023)			
First sta	ate exa	mination for the teaching	degree Gymnasium	Mathematics (2023)	



Module Group Virtual Courses

(ECTS credits)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 71 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

	e title				Abbreviation
E-Learr	ning an	d Blended Learning in M	athematical Teaching	g (virtual Course)	10-M-DVHB-152-m01
Module	e coord	inator		Module offered by	
Dean o	fStudi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
3	(not) s	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts		• •		
		ered by Virtuelle Hochsc e-learning and blended l			acquainted with and reflects on
Intende	ed lear	ning outcomes			
		acquainted with basic n otentials and limitations		and blended learnir	ng in teaching methematics, as
	S (type, r	umber of weekly contact hours, I	language — if other than Gei	rman)	
Ü (2) Course	type: e	Learning, mostly Virtuell	e Hochschule Bayern	ı (vhb)	
		s essment (type, scope, langua le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether
		ased, 15 to 20 hours) ffered: Once a year, wint	er semester		
Allocat					
 Additio	onal inf	ormation			
 Additio 	onal inf	ormation			
		ormation			
 Additio Worklo 90 h		ormation			
 Worklo 90 h	ad				
 Worklo 90 h	ad				
 Worklo 90 h Teachi i	ad ng cycl	e	s for teaching-degree progra	ımmes)	
 Worklo 90 h Teachi Referre § 22 § 22	ng cycl ed to in Nr. 1 h) Nr. 2 f)		s for teaching-degree progra	ımmes)	
 Worklo 90 h Teachin 8 22 § 22 § 22	ng cycl ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f)	e LPO I (examination regulation	s for teaching-degree progra	ımmes)	
 Worklo 90 h Teachin Referre § 22 § 22 § 22 § 22	ng cycl ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea	e LPOI (examination regulation			
 Worklo 90 h Teachin Referre § 22 § 22 § 22 Module First sta First sta	ad ng cycl ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa ate exa	e LPOI (examination regulation I rs in mination for the teaching	g degree Grundschule g degree Grundschule	e Mathematics (2015 e Didactics in Mather) matics (Primary School) (2015)
 Worklo 90 h Teachin § 22 II I § 5 20 I § 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	ad ng cycl ed to in Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa	e LPOI (examination regulation mination for the teaching mination for the teaching mination for the teaching mination for the teaching mination for the teaching	g degree Grundschule g degree Grundschule g degree Realschule M g degree Gymnasium	e Mathematics (2015 e Didactics in Mather Mathematics (2015) Mathematics (2015)	matics (Primary School) (2015)
 Worklo 90 h Teachin Referre § 22 II I § 22 II I § 22 II I § 22 II I First sta First sta First sta First sta First sta First sta (2015)	ad ng cycl ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa	e LPOI (examination regulation irs in mination for the teaching mination for the teaching mination for the teaching mination for the teaching mination for the teaching	g degree Grundschule g degree Grundschule g degree Realschule M g degree Gymnasium g degree Sonderpäda	e Mathematics (2015 e Didactics in Mather Mathematics (2015) Mathematics (2015) gogik Didactics in M	matics (Primary School) (2015) athematics (Primary School)
 Worklo 90 h Teachin Referre § 22 1 § 22 1 § 22 1 § 22 1 Module First sta First sta First sta (2015) First sta (2015)	ad ng cycl ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa ate exa	e LPOI (examination regulation rs in mination for the teaching mination for the teaching	g degree Grundschule g degree Grundschule g degree Realschule A g degree Gymnasium g degree Sonderpäda g degree Sonderpäda	e Mathematics (2015 e Didactics in Mather Mathematics (2015) Mathematics (2015) gogik Didactics in M gogik Didactics in M	matics (Primary School) (2015) athematics (Primary School) athematics (Middle School)
 Worklo 90 h Teachin Referre § 22 § 22 § 22 Module First sta First sta First sta First sta (2015) First sta (2015)	ad ng cycl ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa	e LPO I (examination regulation mination for the teaching mination for the teaching	g degree Grundschule g degree Grundschule g degree Realschule M g degree Gymnasium g degree Sonderpäda g degree Sonderpäda g degree Mittelschule	e Mathematics (2015 e Didactics in Mather Mathematics (2015) Mathematics (2015) gogik Didactics in M gogik Didactics in M	matics (Primary School) (2015) athematics (Primary School) athematics (Middle School)
First sta First sta (2015) First sta First sta First sta (2015)	ad ng cycle ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa	e LPO I (examination regulation mination for the teaching mination for the teaching	g degree Grundschule g degree Grundschule g degree Realschule M g degree Gymnasium g degree Sonderpäda g degree Sonderpäda g degree Mittelschule g degree Mittelschule	e Mathematics (2015 e Didactics in Mather Mathematics (2015) Mathematics (2015) gogik Didactics in M gogik Didactics in M e Mathematics (2015) e Didactics in Mather	matics (Primary School) (2015) athematics (Primary School) athematics (Middle School)) natics (Middle School) (2015)

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First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

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Pacies	Module title Abbreviation						
Basics in Arithmetics (virtual course)					10-M-VHBAri-152-m	01	
Module coordinator				Module offered by			
Dean of Studies Mathematik (Mathematics)			natics)	Institute of Mathematics			
ECTS	Method of grading Only after succ. compl. of module(s)						
2	·	uccessfully completed					
2 Duratio	·	Module level	Other prerequisites				
1 seme		undergraduate					
Contents							
				•1•, ,1 •	1 7.11		
		-	in school, e. g. divisab	ility theory, prime nu	imbers, set theory.		
Intende	ed learr	ning outcomes					
		•	e teaching of arithmetic e employment of new t		•		
Course	S (type, n	umber of weekly contact hours	s, language — if other than Ger	man)			
Ü (2)							
Course	type: e	Learning, mostly Virtue	elle Hochschule Bayern	(vhb)			
		essment (type, scope, lang le for bonus)	uage — if other than German, o	examination offered — if no	t every semester, informat	ion on whether	
project	(web-b	ased, 15 to 20 hours)					
		ffered: Once a year, wir	nter semester				
Allocat	ion of p	laces					
	· · · ·						
Additio	nal info	ormation					
naunno							
Worklo	ad						
60 h							
Teachi	ng cycl	2					
reaction	ing cycli						
	ed to in	DO (ovamination regulation					
	§ 22 Nr. 1 h) § 22 Nr. 2 f)						
§ 22 § 22	Nr. 2 f)		ons for teaching-degree progra	mmes)			
§ 22 § 22 § 22	Nr. 2 f) Nr. 3 f)		ons for teaching-degree progra	mmes)			
§ 22 § 22 § 22 Module	Nr. 2 f) Nr. 3 f) e appea	rs in)		
§ 22 § 22 § 22 Module First sta	Nr. 2 f) Nr. 3 f) e appea ate exal	rs in mination for the teachi	ng degree Grundschule	Mathematics (2015		101) (2015)	
§ 22 § 22 § 22 Module First sta First sta	Nr. 2 f) Nr. 3 f) e appea ate exal ate exal	rs in mination for the teachi mination for the teachi	ng degree Grundschule ng degree Grundschule	e Mathematics (2015 e Didactics in Mather		ool) (2015)	
§ 22 § 22 § 22 Module First sta First sta	Nr. 2 f) Nr. 3 f) e appea ate exai ate exai ate exai	rs in mination for the teachi mination for the teachi mination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule N	e Mathematics (2015 e Didactics in Mather Nathematics (2015)		pol) (2015)	
§ 22 § 22 § 22 Module First sta First sta First sta First sta First sta	Nr. 2 f) Nr. 3 f) e appea ate exan ate exan ate exan ate exan	rs in nination for the teachi mination for the teachi nination for the teachi mination for the teachi	ng degree Grundschule ng degree Grundschule	e Mathematics (2015 Didactics in Mather Aathematics (2015) Mathematics (2015)	natics (Primary Scho	_	
§ 22 § 22 § 22 Module First sta First sta First sta First sta (2015) First sta	Nr. 2 f) Nr. 3 f) e appea ate exal ate exal ate exal ate exal ate exal	rs in mination for the teachi mination for the teachi mination for the teachi mination for the teachi mination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule M ng degree Gymnasium	e Mathematics (2015 e Didactics in Mather Aathematics (2015) Mathematics (2015) gogik Didactics in M	natics (Primary Scho athematics (Primary	School)	
§ 22 § 22 § 22 Module First sta First sta First sta First sta (2015) First sta (2015)	Nr. 2 f) Nr. 3 f) e appea ate exan ate exan ate exan ate exan ate exan ate exan	rs in mination for the teachi mination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule M ng degree Gymnasium ng degree Sonderpäda	e Mathematics (2015 E Didactics in Mather Aathematics (2015) Mathematics (2015) gogik Didactics in M gogik Didactics in M	natics (Primary Scho athematics (Primary athematics (Middle	School)	
§ 22 § 22 § 22 Module First sta First sta First sta First sta (2015) First sta (2015) First sta First sta	Nr. 2 f) Nr. 3 f) e appea ate exal ate exal ate exal ate exal ate exal ate exal ate exal ate exal	rs in mination for the teachi mination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule M ng degree Gymnasium ng degree Sonderpäda ng degree Sonderpäda ng degree Mittelschule ng degree Mittelschule	e Mathematics (2015 e Didactics in Mathen Mathematics (2015) Mathematics (2015) gogik Didactics in M gogik Didactics in M Mathematics (2015) Didactics in Mather	natics (Primary Scho athematics (Primary athematics (Middle	School) School)	
§ 22 § 22 § 22 Module First sta First sta First sta (2015) First sta (2015) First sta First sta First sta First sta First sta	Nr. 2 f) Nr. 3 f) e appea ate exal ate exal ate exal ate exal ate exal ate exal ate exal ate exal ate exal	rs in mination for the teachi mination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule M ng degree Gymnasium ng degree Sonderpäda ng degree Sonderpäda ng degree Mittelschule ng degree Mittelschule ng degree Gymnasium	e Mathematics (2015 e Didactics in Mather Aathematics (2015) Mathematics (2015) gogik Didactics in M gogik Didactics in M Mathematics (2015) Didactics in Mather Mathematics (2019)	natics (Primary Scho athematics (Primary athematics (Middle natics (Middle Schoo	School) School) ol) (2015)	
§ 22 § 22 § 22 Module First sta First sta First sta (2015) First sta (2015) First sta First sta First sta First sta First sta	Nr. 2 f) Nr. 3 f) e appea ate exal ate exal ate exal ate exal ate exal ate exal ate exal ate exal ate exal	rs in mination for the teachi mination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule M ng degree Gymnasium ng degree Sonderpäda ng degree Sonderpäda ng degree Mittelschule ng degree Mittelschule	e Mathematics (2015 e Didactics in Mather Aathematics (2015) Mathematics (2015) gogik Didactics in M gogik Didactics in M Mathematics (2015) Didactics in Mather Mathematics (2019)	natics (Primary Scho athematics (Primary athematics (Middle natics (Middle Schoo	School) School) ol) (2015)	



First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

exchange program Mathematics (2023)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 75 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module title A				Abbreviation		
Basics	Basics in School Geometry (virtual course) 10-M-VHBGeo-152-mo1					n01
Module coordinator			Module offered by			
Dean of Studies Mathematik (Mathematics) Institute of			Institute of Mathem	atics		
ECTS	Metho	thod of grading Only after succ. compl. of module(s)				
2	(not) s	successfully completed				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Revision and consolidation of the fundamental topics in elementary geometry that are prerequisites for the sub- ject-specific and didactic courses (in particular teaching degrees Grundschule, Hauptschule, Realschule) in geo- metry.						
Intende	ed lear	ning outcomes				
		as basic knowledge of s acquainted with the en				
Course	S (type, r	umber of weekly contact hours	, language — if other than Ger	man)		
Ü (2) Course	type: e	Learning, mostly Virtue	lle Hochschule Bayern	(vhb)		
Method	d of ass	essment (type, scope, langu	uage — if other than German,	examination offered — if no	t every semester, informati	on on whether
module is	creditab	le for bonus)				
		oased, 15 to 20 hours) ffered: Once a year, sur	nmer semester			
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
60 h						
Teachi	ıg cycl	e				
Referre	d to in	LPO I (examination regulation	ns for teaching-degree progra	mmes)		
§ 22	Nr. 1 h)					
§ 22						
§ 22						
Module						
		mination for the teachir				-1) ()
		mination for the teachir mination for the teachir			natics (Primary Scho	101) (2015)
First state examination for the teaching degree Realschule Mathematics (2015) First state examination for the teaching degree Gymnasium Mathematics (2015)						
First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School)						
(2015) First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School)						
(2015)						
		mination for the teachir				
		mination for the teachir mination for the teachir			natics (Middle Schoo	01) (2015)
i ii St Sta	ale EXd		is acgree dynindsiulli	mainematics (2019)		I
LA Gymnas	ien Mathe	matics (2023)	-	; • generated 19-Apr-2025 • e ehramt Gymnasien Mathemat	-	page 76 / 103



First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

exchange program Mathematics (2023)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 77 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

	title				Abbreviation		
Stochastics in Sekundarstufe I (virtual course)					10-M-VHBSto-152-mo1		
Module coordinator				Module offered by			
Dean of Studies Mathematik (Mathematics)			atics)	Institute of Mathem	natics		
ECTS	ECTS Method of grading Only after succ. compl. of module(s)						
2	(not) s	successfully completed	ssfully completed				
Duration Module level Other prerequisites							
1 seme	ster	undergraduate					
Conten	ts		• •				
		consolidation of the fund c courses in stochastics		ochastics that are pre	erequisites for the subject-speci-		
Intende	ed learı	ning outcomes					
		as basic knowledge of st acquainted with the em			thematics and its didac- g stochastics in school.		
Course	S (type, n	umber of weekly contact hours,	anguage — if other than Ge	rman)			
Ü (2) Course	type: e	Learning, mostly Virtuell	e Hochschule Bayern	ı (vhb)			
Method	l of ass	essment (type, scope, langua	ge — if other than German,	examination offered — if no	ot every semester, information on whether		
module is	creditab	le for bonus)					
		ased, 15 to 20 hours)					
		ffered: Once a year, wint	er semester				
Allocat	ion of p	DIACES					
 A .1 1***							
Additio	nal info	ormation					
Workload							
	ad						
60 h							
		9					
60 h Teachir 	ıg cycl						
60 h Teachir Referre	ng cyclo d to in	e LPO I (examination regulation	s for teaching-degree progra	ammes)			
60 h Teachir Referre § 22 N § 22 N	ng cycl a d to in Nr. 1 h) Nr. 2 f)		s for teaching-degree progra	ammes)			
60 h Teachir § 22 N § 22 N § 22 N	ng cycl d to in Nr. 1 h) Nr. 2 f) Nr. 3 f)	LPO I (examination regulation	s for teaching-degree progra	ammes)			
60 h Teachir <u>Referre</u> § 22 1 § 22 1 § 22 1 <u>§ 22 1</u>	d to in d to in Vr. 1 h) Vr. 2 f) Vr. 3 f) e appea	LPOI (examination regulation)		
60 h Teachir Referre § 22 N § 22 N § 22 N Module First sta	1g cycl d to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa	LPOI (examination regulation	g degree Grundschule	e Mathematics (2015) natics (Primary School) (2015)		
60 h Teachir Referre § 22 N § 22 N § 22 N S 22 N First sta First sta First sta	d to in d to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa	LPOI (examination regulation Irs in mination for the teaching mination for the teaching mination for the teaching	g degree Grundschule g degree Grundschule g degree Realschule I	e Mathematics (2015 e Didactics in Mather Mathematics (2015)	natics (Primary School) (2015)		
60 h Teachir <u>Referre</u> § 22 1 § 22 1 § 22 1 § 22 1 First sta First sta First sta First sta First sta	d to in d to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa	LPO I (examination regulation ins in mination for the teaching mination for the teaching mination for the teaching mination for the teaching	g degree Grundschule g degree Grundschule g degree Realschule I g degree Gymnasium	e Mathematics (2015 e Didactics in Mather Mathematics (2015) Mathematics (2015)	matics (Primary School) (2015)		
60 h Teachir Referre § 22 N § 22 N § 22 N Module First sta First sta First sta First sta First sta (2015)	d to in Vr. 1 h) Vr. 2 f) Vr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa ate exa	LPO I (examination regulation ars in mination for the teaching mination for the teaching mination for the teaching mination for the teaching mination for the teaching	g degree Grundschule g degree Grundschule g degree Realschule I g degree Gymnasium g degree Sonderpäda	e Mathematics (2015 e Didactics in Mather Mathematics (2015) Mathematics (2015) gogik Didactics in M	natics (Primary School) (2015) athematics (Primary School)		
60 h Teachir Referre § 22 N § 22 N § 22 N S 22 N Module First sta First sta First sta First sta (2015) First sta (2015)	d to in Nr. 1 h) Nr. 2 f) Nr. 3 f) ate exa ate exa ate exa ate exa ate exa ate exa ate exa	LPO I (examination regulation in the second	g degree Grundschule g degree Grundschule g degree Realschule I g degree Gymnasium g degree Sonderpäda g degree Sonderpäda	e Mathematics (2015 e Didactics in Mather Mathematics (2015) Mathematics (2015) gogik Didactics in M gogik Didactics in M	matics (Primary School) (2015) athematics (Primary School) athematics (Middle School)		
60 h Teachir Referre § 22 § 22 § 22 Module First sta First sta First sta (2015) First sta (2015) First sta	d to in d to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa	LPO I (examination regulation ins in mination for the teaching mination for the teaching	g degree Grundschule g degree Grundschule g degree Realschule I g degree Gymnasium g degree Sonderpäda g degree Sonderpäda g degree Mittelschule	e Mathematics (2015 e Didactics in Mather Mathematics (2015) Mathematics (2015) gogik Didactics in M gogik Didactics in M	matics (Primary School) (2015) athematics (Primary School) athematics (Middle School)		

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First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

exchange program Mathematics (2023)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 79 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module	Module title Abbreviation					
Mathematics in grade 10 (virtual course)					10-M-VHBM10-152-m01	
Module coordinator				Module offered by		
Dean o	fStudie	es Mathematik (Mathema	atics)	Institute of Mathem	natics	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
2	(not) s	successfully completed				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts		·			
Basic to	opics o	n teaching mathematics	in tenth grade in Hau	ptschule, Realschul	e and Gymnasium.	
Intende	ed learı	ning outcomes	·			
schule, of new	as wel techno		atical backgrounds ar ematics in tenth form	nd proofs. He/She is	German Mittelschule and Real- acquainted with the employment	
Ü (2)		Learning, mostly Virtuell				
		s essment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether	
		ased, 15 to 20 hours) ffered: Once a year, sum	mer semester			
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
60 h						
Teachi	ng cycl	9				
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
§ 22 § 22	Nr. 2 f)					
§ 22 Modula		rc in				
Module			r degree Grundschuld	Mathematics (2015)	
First sta First sta	First state examination for the teaching degree Grundschule Mathematics (2015) First state examination for the teaching degree Grundschule Didactics in Mathematics (Primary School) (2015) First state examination for the teaching degree Realschule Mathematics (2015) First state examination for the teaching degree Gymnasium Mathematics (2015)					
		-			athematics (Primary School)	
(2015)					athematics (Middle School)	
First sta	ate exa	mination for the teaching mination for the teaching mination for the teaching	g degree Mittelschule	Didactics in Mather	natics (Middle School) (2015)	

LA Gymnasien Mathematics (2023)	JMU Würzburg ● generated 19-Apr-2025 ● exam. reg. data record Lehramt Gymnasien Mathematik - 2023	page 80 / 103



First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

exchange program Mathematics (2023)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 81 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module title					Abbreviation	
School course)		matics from a Didactical	Point of View: Geome	etry online (virtual	10-M-VHBDG-191-m01	
Module coordinator M				Module offered by		
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics	
ECTS	Metho	od of grading	Only after succ. com	er succ. compl. of module(s)		
2	(not) s	successfully completed				
Duratio	Duration Module level Other prerequisites					
1 seme	ster	undergraduate				
Conten	ts					
importa which a chapte	ant for are usu rs on sj	all of geometry and math ally discussed only briefl bace geometry, trigonom	ematics, namely prov ly or not at all in unive	ing and problem so ersity lectures and ir	es on topics which are central and lving. It also addresses topics n the literature. Among these are	
Intende	ed lear	ning outcomes				
ment of and jus They ar of instr	f under tify lea e able uction.	standing of the central contribution of the central contri	oncepts of geometry i sequences for the imp mportance of digital t s of application of geo	n teaching mathem portant topics in sch echnology with resp	niddle and long term develop- atics. They are able to develop nool geometry independently. pect to todays and future design ad are able to perform modelling	
Course	S (type, r	umber of weekly contact hours, l	anguage — if other than Gerr	man)		
Ü (2)						
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	xamination offered — if no	t every semester, information on whether	
Assess	ment o	based, 15 to 20 hours) ffered: Once a year, sum ing, Vhb	mer semester			
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
60 h						
Teachi	ng cycl	e				
Referre	d to in	LPO I (examination regulation	s for teaching-degree program	mmes)		
§ 22						
Module		irs in				
		mination for the teaching	g degree Gymnasium I	Mathematics (2019)		
		gram Mathematics (2023				
First sta	ate exa	mination for the teachinន្	g degree Gymnasium I	Mathematics (2023)		

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 82 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title				Abbreviation	
	School Mathematics from a Didactical Point of View: Algebra online (virtual 10-M-VHBDAL-191-mo1					
course)						
				Module offered by		
_		es Mathematik (Mathema	-	Institute of Mathem	natics	
ECTS		od of grading	Only after succ. com	ipl. of module(s)		
2		successfully completed				
Duratio		Module level	Other prerequisites			
1 seme		undergraduate				
Conten						
		tics is about learning and algebra: extensions of n			n the central and important to- uations and functions.	
Intende	ed lear	ning outcomes				
justify l able to tion. Th	earnin assess iey kno	g units and learning sequestions and value the importance	ences for the import ce of digital technolo ation of algebraic co	ant topics in school gy with respect to to	ics. They are able to develop and algebra independently. They are days and future design of instruc- e to perform modelling (in the	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
Ü (2)						
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether	
Assess	ment o	based, 15 to 20 hours) ffered: Once a year, winte ing, Vhb	er semester			
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
60 h						
Teachir	ng cycl	e				
	• • •					
		LPO I (examination regulations	s for teaching-degree progra	mmes)		
§ 22						
Module						
		mination for the teaching gram Mathematics (2023)		Mathematics (2019)		
		mination for the teaching		Mathematics (2023)		

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 83 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module	title				Abbreviation
School course)		matics from a Didactical	Point of View: Analys	sis online (virtual	10-M-VHBDAN-191-m01
Module	coord	inator		Module offered by	
Dean of	fStudie	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
2	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
analysi	s. This		entral and important t		e" is about learning and teaching ysis: functions, sequences and li-
Intende	ed leari	ning outcomes			
ment of justify l able to tion. Th	f under earning assess ey kno	standing of the central co g units and learning sequ and value the importance	oncepts of analysis ir lences for the import ce of digital technolog ation of concepts in	n teaching mathema ant topics in school gy with respect to to	niddle and long term develop- tics. They are able to develop and analysis independently. They are days and future design of instruc- le to perform modelling (in the
		umber of weekly contact hours, l		man)	
Ü (2)					
		essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
Assess	ment o	based, 15 to 20 hours) ffered: Once a year, winto ing, Vhb	er semester		
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
60 h					
Teachir	ng cycl	e			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 22	Nr. 3 f)				
Module	appea	irs in			
exchan	ge prog	mination for the teaching gram Mathematics (2023 mination for the teaching)	-	

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	title				Abbreviation
Didactics of Stochastics (virtual course)			10-M-VHBDST-191-m01		
Module	coord	inator		Module offered by	
Dean of	fStudie	es Mathematik (Mathema	atics)	Institute of Mathem	atics
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
2	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
portant dom va	topics riables	in stochastics, for examp	ple basics in stochast ce, probability spaces	tics, Bernoulli experi s or the Tschebysche	focuses on the central and im- iments, location parameter, ran- ff inequality. Moreover, the cour- re on stochastics.
Intende	ed leari	ning outcomes			
tions an of unde justify l are able structio	nd met erstand earning e to ass on. They	hods within a conceptual ing of the central concep g units and learning sequ sess and value the impor	l map. They know stra ts of stochastics in te lences for the importa tance of digital techn pplication of concep	ategies of short, mid eaching mathematics ant topics in school s ology with respect to	nd are able to structure the no- dle and long term development s. They are able to develop and stochastics independently. They o todays and future design of in- d are able to perform modelling
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
Ü (2)					
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
Assess	ment o	based, 15 to 20 hours) ffered: Once a year, winte ing, Vhb	er semester		
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
60 h					
Teachir	ng cycl	e			
Referre	d to in	LPOI (examination regulations	s for teaching-degree progra	mmes)	
§ 22					
Module					
exchan	ge prog	mination for the teaching gram Mathematics (2023) mination for the teaching)	-	
		-			

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title				Abbreviation
Exam T	Exam Tutorial Didactics of Mathematics (virtual course) 10-M-VHBEx-191-m01				
Module	e coord	inator		Module offered by	I
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
3	(not) s	successfully completed			
Duration Module level Other prerequisites					
1 seme	ster	undergraduate			
Conten	Its		• •		
the Ers as basi	tes Sta ic guide	atsexamen für Lehramt G elines for answering exan	iymnasium (first state	e examination for tea	g of theorems) in preparation for aching at a Gymnasium) as well tate examination in Bavaria).
	-	ning outcomes			
			-		s for solving the exam problems.
	S (type, r	number of weekly contact hours, I	anguage — if other than Ger	rman)	
Ü (2)					
		sessment (type, scope, langua lle for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
Assess	ment o	based, 15 to 20 hours) ffered: Once a year, wint iing, Vhb	er semester		
Allocat	ion of j	olaces			
Additio	onal inf	ormation			
Worklo	ad				
90 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 22	Nr. 3 f)				
Module		ars in			
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2019)	

Module	e title				Abbreviation
Exam Tutorial Algebra (virtual course) 10-M-VH					10-M-VHBExA-191-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. con	npl. of module(s)	
3	(not) s	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	Its				
are ado are dis	dressec cussed		and fundamental alg	ebraic concepts with	ories of groups, rings and fields n their set-theoretic interrelations and their solutions.
The stu braic p	ident fo roof me	or the teaching degree for			problems and the respective alge- shows the level of difficulty in the
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Gei	rman)	
Ü (4)					
		sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
Assess	ment o	based, 15 to 20 hours) ffered: Once a year, sum ing, Vhb	mer semester		
Allocat	ion of _l	olaces			
Additio	onal inf	ormation			
Worklo	ad				
90 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	immes)	
§ 22	Nr. 3 f)				
Module	e appea	ins in			
		mination for the teaching			
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2023)	

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Module	e title				Abbreviation
Mathe	matics	1 (virtual course)			10-M-VHBMa1-152-m01
Module	e coord	inator		Module offered by	
Dean o	fStudie	es Mathematik (Mathema	atics)	Institute of Mathem	atics
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)	
2	(not) s	successfully completed			
Duratio	·	Module level	Other prerequisites		
1 semester undergraduate					
Conten	ts				
		basic topics on teaching concerning the organisa		mnasium, in particul	lar verbal and subject-specific
Intend	ed learı	ning outcomes			
		able to discuss selected oth subject-related and n		s on teaching mathe	matics at German Gymnasium,
Course	S (type, n	number of weekly contact hours, I	anguage — if other than Ger	man)	
Ü (2) Course	type: e	Learning, mostly Virtuell	e Hochschule Bayern	(vhb)	
		Sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	t every semester, information on whether
		oased, 15 to 20 hours) ffered: Every two years, v	vinter semester		
Allocat	ion of p	olaces			
Additio	onal info	ormation			
Workla	ad				
60 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 22 § 22 § 22	Nr. 2 f)				
-	e appea	urs in			
		mination for the teaching	g degree Grundschule	Mathematics (2015))
First st	ate exa		g degree Grundschule	Didactics in Mather	, natics (Primary School) (2015)
First state examination for the teaching degree Gymnasium Mathematics (2015)					
	ate exa	mination for the teaching	g degree Sonderpäda	gogik Didactics in M	athematics (Primary School)
First sta (2015)				1 D 1	
First sta (2015) First sta (2015)					athematics (Middle School)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 88 / 103
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First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

exchange program Mathematics (2023)

LA Gymnasien Mathematics (2023)	JMU Würzburg • generated 19-Apr-2025 • exam. reg.	page 89 / 103
	data record Lehramt Gymnasien Mathematik - 2023	

Module	title				Abbreviation
Mather	natics	2 (virtual course)			10-M-VHBMa2-152-m01
Module coordinator				Module offered by	
Dean of	fStudie	es Mathematik (Mathema	atics)	Institute of Mathem	atics
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
2	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
		central topics on teachin lementation in the classr		iymnasium, in partic	ular didactic analyses and possi
Intende	ed learn	ning outcomes			
		able to discuss and ana om a didactical point of v		and questions on tea	ching mathematics at German
Course	5 (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
Ü (2) Course	type: e	Learning, mostly Virtuell	e Hochschule Bayern	(vhb)	
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
		ased, 15 to 20 hours) ffered: Every two years, s	ummer semester		
Allocat	ion of p	olaces			
Additio	nal info	ormation			
Worklo	ad				
60 h					
Teachir	ng cycl	9			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 22 § 22 § 22	vr. 2 f)				
§ 22		ve in			
Module		i rs in mination for the teaching	r dogroo Grundsshuls	Mathomatics (acto)
First sta First sta	ate exa ate exa	mination for the teaching mination for the teaching	g degree Grundschule g degree Realschule N	e Didactics in Mather Nathematics (2015)) natics (Primary School) (2015)
		mination for the teaching mination for the teaching		_	athematics (Primary School)
_	ate exa	mination for the teaching	g degree Sonderpäda	gogik Didactics in M	athematics (Middle School)
First sta First sta	ate exa	mination for the teaching mination for the teaching mination for the teaching	g degree Mittelschule	Didactics in Mathen	natics (Middle School) (2015)

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First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))

exchange program Mathematics (2023)

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	data record Lehramt Gymnasien Mathematik - 2023	

Module title Abbreviation						
Compu	Computer and Mathematics (virtual course) 10-M-VHBCom-152-mo1					
Modul	e coord	inator	Module offered by			
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathen	natics	
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	ester	undergraduate				
Conten	nts		<u>.</u>			
Discus puter te		possible ways to use cor	nputers in teaching n	nathematics as well	as discussion of common com-	
Intend	ed lear	ning outcomes				
		s acquainted with basic p s with the potential and l			uters in the teaching of mathema	
Course	S (type, 1	number of weekly contact hours, I	anguage — if other than Gei	rman)		
Ü (2) Course	e type: e	eLearning, mostly Virtuell	e Hochschule Bayern	(vhb)		
		S essment (type, scope, langua ole for bonus)	ge — if other than German,	examination offered — if n	ot every semester, information on whether	
	-	oased, 15 to 20 hours) iffered: Every two years, s	ummer semester			
Allocat	tion of	places				
Additio	onal inf	ormation				
Worklo	bad					
60 h						
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination regulation	s for teaching-degree progra	immes)		
§ 22	Nr. 3 f)					
Module	e appea	ars in				
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2015)		
		mination for the teaching				
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2023)	

Module	Module title Abbreviation					
Start-u	Start-up Tutorial Mathematics (virtual course) 10-M-VHBBr-152-m01					
Module	e coord	linator		Module offered by	1	
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathen	natics	
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	ester	undergraduate				
Conten	nts					
		ussion of basic topics in r proofs.	nathematics that are	well known from sc	hool, with a focus on mathemati-	
Intend	ed lear	ning outcomes				
		ets acquainted with the b degree study programme.		ues which are prere	quisites for the further courses in	
Course	S (type, I	number of weekly contact hours, l	anguage — if other than Gei	rman)		
Ü (2) Course	type: e	eLearning, mostly Virtuell	e Hochschule Bayern	(vhb)		
		s essment (type, scope, langua ble for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
		oased, 15 to 20 hours) offered: Every two years, v	vinter semester			
Allocat	tion of	places				
Additio	onal inf	ormation				
Worklo	ad					
60 h						
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
§ 22	Nr. 3 f)					
Module	e appea	ars in				
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2015)		
		mination for the teaching				
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2023))	

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	e title				Abbreviation
Exam T	utorial	Complex Analysis (virtua	al course)		10-M-VHBFT-191-m01
Module	Module coordinator Mo			Module offered by	
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
3	(not) s	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
for the tions w exercis	Bavaria vith ree es from	an state examination for l analysis and geometry. n exams of previous years	he teaching degree (The topics are supple	Gymnasium. A partic emented and illustra	s with respect to their relevance ular focus is given to interrela- ted by selected examples and
		ning outcomes			
the res	pective		plex analysis and is	able to apply them i	ands the central concepts and n different contexts. The course
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)	
Ü (4)					
		s essment (type, scope, langua ile for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
Assess	ment o	based, 30 to 40 hours) ffered: Once a year, winto iing, Vhb	er semester		
Allocat					
Additio	onal inf	ormation			
Worklo	ad				
90 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	immes)	
§ 22	Nr. 3 f)				
Module	e appea	ars in			
		mination for the teaching		-	
First st	ate exa	mination for the teaching	degree Gymnasium	Mathematics (2023)	1

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	data record Lehramt Gymnasien Mathematik - 2023	

Modul	e title				Abbreviation
Exam 1	Futorial	Ordinary Differential Equ	uations (virtual cours	e)	10-M-VHBDGL-191-m01
Modul	Module coordinator Module of			Module offered by	
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Methe	od of grading	Only after succ. com	pl. of module(s)	
3	(not)	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conter	nts				
cus is g are sup	given to	o animations and visualis nted and illustrated by se	ations of the behavio	our of solutions of di	egree Gymnasium. A particular fo- fferential equations. The topics ms of previous years in varying
Intend	ed lear	ning outcomes			
the res rent co	pective ontexts.	e methods of proof in the The course shows the lev	field of ordinary diffe vel of difficulty in the	rential equations ar Bavarian state exan	ands the central concepts and nd is able to apply them in diffe- nination.
	es (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
Ü (3)	_				
		sessment (type, scope, langua ele for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
Assess	sment o	based, 20 to 30 hours) iffered: Once a year, sum iing, Vhb	mer semester		
	tion of _l				
Additio	onal inf	ormation			
Worklo	bad				
90 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 22	Nr. 3 f)				
Modul	e appea	ars in			
First st	ate exa	mination for the teaching			

Module	e title				Abbreviation
History	of Ma	thematics (virtual course)		10-M-VHBHM-191-m01
Module coordinator Module offered				Module offered by	
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Meth	od of grading	Only after succ. com	pl. of module(s)	
5	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
		cs from the history of mat ent of modern algebra (a			e foundation of mathematics or
Intend	ed lear	ning outcomes			
The stu	dent s	hall			
ii) learr	n the ba	verview over the developr asic techniques for workin search using databases a	ng with mathematica	l texts as well as his	torical texts on mathematics
iii) be a	ble to	write an essay on a selec	ted topic from the his	story of mathematics	5.
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
Ü (2) Module	e taugh	t in: English			
		Sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
Langua Assess	ge of a ment o	o to 20 pages) ssessment: German and, ffered: Once a year, sumi iing, Vhb			
Allocat	ion of _l	olaces			
Additio	nal inf	ormation			
			-		
Worklo	ad				
150 h					
Teachi	ng cycl	e			
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)	
§ 22			0		
Module	-	ars in			
		mination for the teaching	degree Gymnasium	Mathematics (2010)	
		gram Mathematics (2023)		()	
		mination for the teaching			

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	data record Lehramt Gymnasien Mathematik - 2023	

Module title Abbreviation						
Mathematics 3 (virtual course)					10-M-VHBMa3-232-m01	
Module coordinator				Module offered by		
				Institute of Mathem	atics	
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)		
3	(not) s	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ster					
Conten	ts					
Intende	ed learr	ning outcomes				
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
Ü (2)						
		Learning, mostly Virtuell				
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
		ased, 15 to 20 hours) ffered: Every two years, v	vinter semester			
Allocat	ion of p	olaces				
Additio	nal info	ormation				
Worklo	ad					
90 h						
Teachir	ng cycl	e				
Referred to in LPO I (examination regulations for teaching-degree programmes)						
§ 22 Nr. 3 f)						
Module appears in						
		gram Mathematics (2023 mination for the teaching		Mathematics (2023)		
First state examination for the teaching degree Gymnasium Mathematics (2023)						

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	Module title Abbreviation					
Mathematics 4 (virtual course)					10-M-VHBMa4-232-m01	
Module coordinator				Module offered by		
				Institute of Mathem	atics	
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)		
3	(not) s	successfully completed				
Duratio	n	Module level	Other prerequisites			
1 seme	ster					
Conten	ts		-			
Intende	ed learn	ning outcomes				
Course	S (type, n	umber of weekly contact hours, I	anguage — if other than Ger	man)		
Ü (2)				<pre>/ `</pre>		
		Learning, mostly Virtuell				
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
		ased, 15 to 20 hours) ffered: Every two years, v	vinter semester			
Allocat	ion of p	olaces				
Additio	nal info	ormation				
Worklo	ad					
90 h						
Teachir	ng cycl	e				
Referred to in LPO I (examination regulations for teaching-degree programmes)						
§ 22 Nr. 3 f)						
Module appears in						
		gram Mathematics (2023 mination for the teaching		Mathematics (2023)		

Module	Module title Abbreviation						
Accesses to the Foundations of Analysis (virtual course)					10-M-VHBZGA-232-m01		
Module coordinator				Module offered by			
				Institute of Mathem	atics		
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)			
2	(not) s	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 seme	ster						
Conten	ts						
Intende	ed learn	ning outcomes					
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)			
Ü (2)							
		Learning, mostly Virtuell					
		r essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether		
project	(web-b	ased, 15 to 20 hours)					
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
60 h							
Teachir	ng cycl	e					
Referred to in LPO I (examination regulations for teaching-degree programmes)							
§ 22 Nr. 3 f)							
Module appears in							
		gram Mathematics (2023) mination for the teaching		Mathematics (2023)			

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Module	Module title Abbreviation						
Mather	natical	Modelling (virtual cours	10-M-VHBMM-232-m01				
Module	e coord	inator		Module offered by	· · · · · · · · · · · · · · · · · · ·		
				Institute of Mathem	natics		
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)			
3	(not) s	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 seme	ster						
Conten	ts						
Intende	ed learr	ning outcomes					
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)			
Ü (2)							
		Learning, mostly Virtuell					
		essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether		
project	(web-b	ased, 15 to 20 hours)					
Allocat	ion of p	olaces					
Additio	nal info	ormation					
Worklo	ad						
90 h							
Teachir	ng cycl	e					
Referred to in LPO I (examination regulations for teaching-degree programmes)							
§ 22 Nr. 3 f)							
Module appears in							
		gram Mathematics (2023		Mathematics (2022)			
First state examination for the teaching degree Gymnasium Mathematics (2023)							

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	data record Lehramt Gymnasien Mathematik - 2023	

Module	Module title Abbreviation						
Fundamentals of Applied University Mathematics (virtual course)					10-M-VHBGAH-232-m01		
Module coordinator				Module offered by			
				Institute of Mathem	natics		
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)			
5	(not) s	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 seme	ster						
Conten	ts						
Intende	ed leari	ning outcomes					
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)			
Ü (4)							
Course	type: e	Learning, mostly Virtuell	e Hochschule Bayern	(vhb)			
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether		
project	(web-b	ased, 15 to 20 hours)					
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
150 h							
Teachir	ng cycl	e					
Referred to in LPO I (examination regulations for teaching-degree programmes)							
§ 22 Nr. 3 f)							
Module appears in							
		gram Mathematics (2023 mination for the teaching		Mathematics (2023)			
First state examination for the teaching degree Gymnasium Mathematics (2023)							

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Paper

(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 Gymnasium may write this thesis in one of the subjects they selected as vertieft studiertes Fach (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.

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	data record Lehramt Gymnasien Mathematik - 2023	

Modul	e title			Abbreviation			
Thesis in Mathematics (Teaching Degree at German Gymnasiu				isium)	10-M-HMGY-152-m01		
Module coordinator				Module offered by	<u>I</u>		
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
10	nume	rical grade					
Duratio	on	Module level	Other prerequisites				
1-2 sen	nester	undergraduate					
Conten	Its						
		y researching and writing supervisor.	on a topic in mathen	natics or mathemation	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, l	anguage — if other than Ger	rman)			
No cou	rses as	signed to module					
		Sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether		
to 300 Langua	hours) age of a		-	-	aching-degree programmes) (250 on 4 LPO I (examination regulati-		
Allocat	ion of j	olaces					
Additic	onal inf	ormation					
Worklo	ad						
300 h							
Teachi	ng cycl	e					
Referre	ed to in	LPOI (examination regulation	s for teaching-degree progra	immes)			
§ 29		-	• • •				
	e appea	ars in					
		mination for the teaching	g degree Gymnasium	Mathematics (2015)			
First st	First state examination for the teaching degree Gymnasium Mathematics (2019)						
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2023)			