

Module Catalogue for the Subject

Didactics in Mathematics (Primary School)

as Didaktikfach

with the degree "Erste Staatsprüfung für das Lehramt für Sonderpädagogik"

Examination regulations version: 2009 Responsible: Institute of Mathematics



Contents

The subject is divided into	3
Abbreviations used, Conventions, Notes, In accordance with	4
Compulsory Courses	5
Mathematics in German Grundschule (Arithmetic, Geometry and Application of Mathematics)	6
Compulsory Electives	8
Selected Topics in Didactics of Mathematics (German Grundschule)	9
Methodology of Teaching in Mathematics (German Grundschule)	10
Freier Bereich (general as well as subject-specific electives)	11
Selected Topics in Didactics of Mathematics (German Grundschule)	12
Methodology of Teaching in Mathematics (German Grundschule)	13
E-Learning and Blended Learning in Mathematics at school	14
Basics in Arithmetics (virtual course)	15
Basics in School Geometry (virtual course)	16



The subject is divided into

section / sub-section	ECTS credits	starting page
Compulsory Courses	10	5
Compulsory Electives	o or 5	8
Freier Bereich (general as well as subject-specific electives)	0-15	11



Abbreviations used

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

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:

LASP02009

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

23-May-2012 (2012-82)

25-Sep-2014 (2014-65)

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



Compulsory Courses

(10 ECTS credits)

Successful completion of modules worth no less than 10 ECTS credits in each subject selected as Didaktikfach (subject studied with a focus on teaching methodology) (mandatory courses) is a prerequisite for admission to the Erste Staatsprüfung (First State Examination) in the subject Didaktik der Grundschule (Didactics for Grundschule). In addition, modules worth another 5 ECTS credits must be successfully completed in one of the subjects selected as Didaktikfach (mandatory electives).



Modul	Module title				Abbreviation
Mathematics in German Grundschule (Arithmetic, Geometry and Application o Mathematics)					10-M-MGS-092-m01
Modul	Module coordinator Module offered by				
Dean c	Dean of Studies Mathematik (Mathematics) Institute of Mathe			Institute of Mathem	atics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
10	nume	rical grade			
Duration Module level Other prerequisites					
2 semester undergraduate					
Conter	Contents				

Discussion of central topics in teaching mathematics in Grundschule taking into account subject-specific and didactic aspects as well as possibilities of implementation in the classroom, also including modern technologies.

Intended learning outcomes

The student is acquainted with the mathematical basics of elementary school mathematics and can explain them. He/She knows about the objectives of teaching mathematics in elementary school, fundamentals of developmental psychology and didactics of mathematics, as well as important models, presentations and media which can be employed in teaching mathematics in elementary school. She/he knows about common difficulties and problems of pupils in the acquisition of mathematical skills, and can employ didactical principles and teaching and learning strategies.

Courses (type, number of weekly contact hours, language — if other than German)

This module comprises 3 module components. Information on courses will be listed separately for each module component.

- 10-M-MGS-P-092: M (no information on SWS (weekly contact hours) and course language available)
- 10-M-MGS-1-092: V + Ü (no information on SWS (weekly contact hours) and course language available)
- 10-M-MGS-2-092: V + Ü (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.

Assessment in module component 10-M-MGS-P-092: Mathematics in German Grundschule (Exam in Arithmetic, Geometry and Application of Mathematics)

- 1 ECTS, Method of grading: numerical grade
- written examination (approx. 120 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 15 minutes) or an oral examination in groups (groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or by a written and/or multi-media portfolio (as announced)
- Only after successful completion of module components: Successful completion of the two module components 10-M-MGS-1 and 10-M-MGS-2 is a prerequisite for participation in module component 10-M-MGS-Ρ.

Assessment in module component 10-M-MGS-1-092: Mathematics in German Grundschule (Arithmetic) Mathematics in German Grundschule (Arithmetic)

- 5 ECTS, Method of grading: (not) successfully completed
- exercises: At the beginning of the course, the lecturer will specify the type and scope of exercises to be successfully completed over the course of the semester for the module component to be considered successfully completed.

Assessment in module component 10-M-MGS-2-092: Mathematics in German Grundschule (Geometry and Application of Mathematics) Mathematics in German Grundschule (Geometry and Application of Mathematics)

4 ECTS, Method of grading: (not) successfully completed



• exercises: At the beginning of the course, the lecturer will specify the type and scope of exercises to be successfully completed over the course of the semester for the module component to be considered successfully completed.

Allocation of places

--

Additional information

__

 $\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$



Compulsory Electives

(o or 5 ECTS credits)



Module title					Abbreviation	
Selected Topics in Didactics of Mathematics (German Grundschule)				dschule)	10-M-DAGS-092-m01	
Modul	e coord	inator		Module offered	by	
Dean o	of Studi	es Mathematik (Mathema	atics)	Institute of Math	nematics	
ECTS	Metho	od of grading	Only after succ. con	ıpl. of module(s)		
2	(not)	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ester	undergraduate				
Conter	nts		,			
Intend The stu planning	ed lear udent is ng and	ning outcomes acquainted with theoret analysing teaching of ma	ical concepts in the c	lidactics of math	bstantial learning environments). ematics, knows important aspects of es for teaching and learning und can	
		nploy them. number of weekly contact hours, I	anguago if other than Cor	man)		
	_	tion on SWS (weekly cont			 ahle)	
Metho	d of ass				if not every semester, information on whether	
a) talk (approx. 60 minutes) or b) project (approx. 5 to 15 pages) or c) portfolio (approx. 5 to 15 pages) Assessment offered: once a year, winter semester						
Allocation of places						
Additional information						
D-f	od to in	LPO I (examination regulation	- f t			



e title			Abbreviation				
Methodology of Teaching in Mathematics (German Grunds			chule)	10-M-DMGS-092-m01			
coord	inator		Module offered by				
f Studie	es Mathematik (Mathema	atics)	Institute of Mathen	natics			
Metho	od of grading	Only after succ. con	npl. of module(s)				
(not) s	successfully completed						
n	Module level	Other prerequisites					
ster	undergraduate						
ts							
chnolo ed leari ident ki hing ma	gies. ning outcomes nows about possibilities athematics and importan	to promote mathema t aspects in planning	itical skills, criteria f	für assessing media and their use teaching of mathematics. He/She			
				them.			
	i						
nformat	ion on SWS (weekly cont	act hours) and cours	e language available	e)			
		ge — if other than German,	examination offered — if no	ot every semester, information on whether			
a) talk (approx. 45 minutes) or b) project (approx. 5 to 15 pages) or c) portfolio (approx. 5 to 15 pages) Assessment offered: once a year, summer semester							
Allocation of places							
							
nal inf	ormation						
-							
	e coord f Studie (not) s on ster Its sion of cor par I learni chnolo ed learni dent ki hing ma ainted s (type, n format d of ass s creditab (approx ment o cion of p	dology of Teaching in Mathematics e coordinator f Studies Mathematik (Mathematics Method of grading (not) successfully completed on Module level ster undergraduate tts sion of topics in the methodologics or particularly strong in mathematic learning environments as well echnologies. ded learning outcomes ident knows about possibilities hing mathematics and importantication and teaching mathematics and importantication on SWS (weekly content of assessment (type, scope, languate creditable for bonus) (approx. 45 minutes) or b) projement offered: once a year, summer of the content of the conten	dology of Teaching in Mathematics (German Grunds e coordinator f Studies Mathematik (Mathematics) Method of grading	dology of Teaching in Mathematics (German Grundschule) e coordinator f Studies Mathematik (Mathematics) Method of grading (not) successfully completed (not) successfully completed mathematics on Module level Other prerequisites ster undergraduate otts sion of topics in the methodology of teaching mathematics; e. g. support or or particularly strong in mathematics, dealing with heterogeneity in the I learning environments as well as possibilities of implementation in the ochnologies. ed learning outcomes Ident knows about possibilities to promote mathematical skills, criteria fe hing mathematics and important aspects in planning and analysing the fe lainted with learning and teaching strategies and can employ and assess f (type, number of weekly contact hours, language — if other than German) information on SWS (weekly contact hours) and course language available d of assessment (type, scope, language — if other than German, examination offered — if no screditable for bonus) (approx. 45 minutes) or b) project (approx. 5 to 15 pages) or c) portfolio (ment offered: once a year, summer semester clion of places			

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



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

(0-15 ECTS credits)

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

Freier Bereich -- 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".



Module	Module title Abbreviation						
Selected Topics in Didactics of Mathematics (German Grundsch				dschule)	10-M-DAGS-092-m01		
Module	e coord	inator		Module offered b	y		
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathe	ematics		
ECTS	Metho	od of grading	Only after succ. con	ıpl. of module(s)			
2	(not)	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conten	ts						
Intende The stu plannir	ed lear dent is	ning outcomes acquainted with theoret analysing teaching of ma	ical concepts in the c	lidactics of mather	stantial learning environments). matics, knows important aspects of for teaching and learning und can		
		nploy them.	anguage if other than Cor	man)			
		tion on SWS (weekly cont			ole)		
Method	d of ass				not every semester, information on whether		
		k. 60 minutes) or b) proje ffered: once a year, winte		ges) or c) portfolio	(approx. 5 to 15 pages)		
Allocation of places							
Additional information							
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						



Module title					Abbreviation	
Metho	dology	of Teaching in Mathema	tics (German Grunds	chule)	10-M-DMGS-092-m01	
Modul	e coord	inator		Module offered by	Į.	
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)		
3	(not)	successfully completed				
Durati	on	Module level	Other prerequisites			
1 seme	ester	undergraduate				
Conte	nts					
Intend The st	udent k	ning outcomes nows about possibilities			ür assessing media and their use	
		athematics and importar with learning and teachi			eaching of mathematics. He/She them.	
Course	es (type, i	number of weekly contact hours,	anguage — if other than Ger	rman)		
S (no i	nforma	tion on SWS (weekly cont	act hours) and cours	e language available	e)	
		sessment (type, scope, langua ole for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether	
a) talk (approx. 45 minutes) or b) project (approx. 5 to 15 pages) or c) portfolio (approx. 5 to 15 pages) Assessment offered: once a year, summer semester						
Allocation of places						
						
Additional information						
Referr	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		



Modul	Module title Abbreviation					
E-Lear	rning an	d Blended Learning in M	athematics at school		10-M-DVHB-092-m01	
Modu	le coord	linator		Module offered by	,	
Dean	of Studi	es Mathematik (Mathema	atics)	Institute of Mather	matics	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
3	(not)	successfully completed				
Durati	ion	Module level	Other prerequisites			
at the beginning of the cousidered a declaration of we dents have obtained the quantity the course of the semester sessment into effect. Study ted to assessment in the consessment at a later date, so for admission to assessment at a later date, so for admission to assessment at a later date, so for admission to assessment into a module with identified by the word virtual the exercise must always a course. This registration for of will to seek admission to			the course. Registra on of will to seek adn of will to seek adn of the qualification for mester, the lecturer of the current or in the date, students will have sessment anew. Course (vhb) in the field of the with an exercise or dirtuell (online) as leading to assessment of assessment of assessment of assessment of the exercise of th	ents about the respective details ation for the course will be conmission to assessment. If stuor admission to assessment over will put their registration for asset all prerequisites will be admitted subsequent semester. For asseave to obtain the qualification curses offered online by Virtuelle mathematics are always incorto. The respective modules can be added in brackets. Registration for SB@Home at the beginning of the will be considered a declaration to If the exercise was successfulgistration for assessment into ef-		
Conte	nts					
		fered by Virtuelle Hochso e-learning and blended			acquainted with and reflects on	
Intend	ded lear	ning outcomes				
		s acquainted with basic notentials and limitations		and blended learni	ng in teaching methematics, as	
Cours	es (type, i	number of weekly contact hours,	language — if other than Ge	rman)		
Ü (no	informa	tion on SWS (weekly con	tact hours) and cours	e language availabl	le)	
	Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)					
	web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)					
Allocation of places						
						
Additi	Additional information					

 $\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$



Modul	Module title Abbreviation						
Basics	Basics in Arithmetics (virtual course)				10-M-VHBAri-092-m01		
Modul	le coord	linator		Module offered by			
Dean	of Studi	es Mathematik (Mathema	atics)	Institute of Mather	natics		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)			
3	(not)	successfully completed					
Durati	ion	Module level	Other prerequisites				
sessment. The lecturer will inform students about the respate the beginning of the course. Registration for the course sidered a declaration of will to seek admission to assess dents have obtained the qualification for admission to assessment into effect. Students who meet all prerequisites ted to assessment in the current or in the subsequent sensessment at a later date, students will have to obtain the for admission to assessment anew. Courses offered online Hochschule Bayern (vhb) in the field of mathematics are a porated into a module with an exercise. The respective modernified by the word virtuell (online) added in brackets. the exercise must always be made via SB@Home at the becourse. This registration for the exercise will be considere of will to seek admission to assessment. If the exercise will y completed, the lecturer will put the registration for asses			tion for the course will be con- mission to assessment. If stu- or admission to assessment over will put their registration for as- et all prerequisites will be admit- ne subsequent semester. For as- nave to obtain the qualification arses offered online by Virtuelle mathematics are always incor- The respective modules can be dded in brackets. Registration for B@Home at the beginning of the e will be considered a declaration t. If the exercise was successful-				
Conte	nts						
Basic	topics o	on teaching arithmetics in	school, e. g. divisab	ility theory, prime n	umbers, set theory.		
Intend	led lear	ning outcomes					
					athematical backgrounds and ching arithmetic in school.		
Course	es (type, i	number of weekly contact hours,	language — if other than Ger	rman)			
Ü (no i	informa	tion on SWS (weekly con	tact hours) and cours	e language availabl	e)		
	Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)						
web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the course)							
Allocation of places							
Additi	Additional information						
Referr	Referred to in LPO I (examination regulations for teaching-degree programmes)						



Module	Module title Abbreviation							
Basics		10-M-VHBGeo-092-mo1						
			•	as adults offered by	-			
Module	_	inator es Mathematik (Mathema	a+: ac)	Module offered by Institute of Mathen	- ation			
ECTS	1	es mathematik (mathema od of grading	Only after succ. con		Tatics			
	1	successfully completed	Unity after Succ. con	ipi. oi illouute(s)				
3 Duratio		Module level	Other prerequisites					
Certain prerequisites must be met to qualify for admission sessment. The lecturer will inform students about the responsible to the beginning of the course. Registration for the course was sidered a declaration of will to seek admission to assessment have obtained the qualification for admission to assist the course of the semester, the lecturer will put their regist sessment into effect. Students who meet all prerequisites was ted to assessment in the current or in the subsequent semisters are at a later date, students will have to obtain the qualification for admission to assessment anew. Courses offered online Hochschule Bayern (vhb) in the field of mathematics are all porated into a module with an exercise. The respective modidentified by the word virtuell (online) added in brackets. Reference to the exercise must always be made via SB@Home at the beautified to seek admission to assessment. If the exercise was ly completed, the lecturer will put the registration for assess fect at the end of the course.				ents about the respective details tion for the course will be connission to assessment. If stubrated and its interest and prerequisites will be admitted subsequent semester. For asseve to obtain the qualification arses offered online by Virtuelle mathematics are always incorthe respective modules can be dded in brackets. Registration for B@Home at the beginning of the will be considered a declaration to the first of the exercise was successful-				
Revision and consolidation of the fundamental topics in elementary geometry that are prerequisites for the subject-specific and didactic courses (in particular teaching degrees Grundschule, Hauptschule, Realschule) in geometry.								
Intende	ed lear	ning outcomes						
The student has basic knowledge of school geometry, as required for the study of mathematics and its didactics. He/She is acquainted with the employment of new technologies for teaching geometry in school.								
Courses (type, number of weekly contact hours, language — if other than German)								
Ü (no information on SWS (weekly contact hours) and course language available)								
	Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)							
web-ba	web-based project assignments and tests (length/expenditure of time to be announced at the beginning of the							

 $\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$

course)

Allocation of places

Additional information