

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: 2012 Responsible: Institute of Mathematics

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The subject is divided into

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Mathematics		25
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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:

LASPO2009

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

13-Mar-2013 (2012-172)

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

(92 ECTS credits)

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Module	e title				Abbreviation
Algebra um)	a and G	eometry for Teaching De	gree Mathematics (G	ierman Gymnasi-	10-M-AGL-122-m01
Module	e coord	inator		Module offered by	
Dean o	f Studie	es Mathematik (Mathema	atics)	Institute of Mathen	natics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
15	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
2 seme	ster	undergraduate	By way of exception assessments.	, additional prerequ	isites are listed in the section on
Conten	ts				
Introdu structu rems, r	ction to res (gro elation	o algebra and a topic in g oups, rings, fields); axion s to linear algebra and al	eometry (differential natic introduction of p gebra, curves and hy	geometry or project projective spaces, co persurfaces in Eucli	ive geometry): basic algebraic oordinates, fundamental theo- dean spaces, curvature.
Intende	ed learı	ning outcomes			
The stu try.He/2 borders	dent is She is a s of diff	acquainted with the fun able to relate these conce erent branches in mathe	damental concepts a epts with one anothe matics.	nd methods in algel r, and realises the a	ora and a field of geome- dvantages of thinking across the
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
This mo • 1' w • 1'	odule h o-M-AL veekly o o-M-AG	as 4 components; inform G-L-122, 10-M-DGE-L-122, contact hours available) ¡L-P-122: M (no informatio	nation on courses list , and 10-M-PGE-L-122 on on language and r	ed separately for ea : V + Ü (no informati number of weekly co	ch component. on on language and number of ntact hours available)
Method module is	d of ass creditab	s essment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
This mo the ass ents.	odule h essme	as the following 4 assess nt components 10-M-ALG	sment components. T -L and 10-M-ALG-P ar	o pass the module and one of the remain	as a whole students must pass ing two assessment compon-
Assess tion to Einführ dents P Projekt ching D • 6 • w m ti c c m ti c c m ti c s s	ment in Algebra ung in Pursuin ive Geo egree (ECTS o vritten o nay be fon in g essfully nodule anguag additior ites. Th tration	a module component 10-1 a for Students Pursuing a die Differentialgeometrie g a Teaching Degree Gym ometrie für Lehramt Gymr Gymnasium): credits, pass / fail examination (approx. 90 replaced by an oral exam roups of 2 candidates (ap y completed if it is selecte component for assessme ge of assessment: Germa hal prerequisites: To qual the lecturer will inform stu for the course will be co	M-ALG-L-122: Einführ Teaching Degree Gyr für Lehramt Gymnas masium), and in mod masium (Introduction to 180 minutes). If a ination of one candic prox. 30 minutes). The das subject of the or ent purposes (Prüfung n; English if agreed u lify for admission to a dents about the resp nsidered a declaration	rung in die Algebra f nnasium), in modul ium (Introduction to ule component 10-M to Projective Geome late each (approx. 2 he module compone al examination cove gsteilmodul)) and th pon with examiner(assessment, studen ective details at the on of will to seek ad	ür Lehramt Gymnasium (Introduc- e component 10-M-DGE-L-122: Differential Geometry for Stu- A-PGE-L-122: Einführung in die etry for Students Pursuing a Tea- cturer, the written examination o minutes) or an oral examina- ent will also be considered suc- ring several modules (separate is examination is passed. s) ts must meet certain prerequi- beginning of the course. Regi- mission to assessment. If stu-

lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Assessment in module component 10-M-AGL-P-122: Prüfung Algebra und Geometrie für Lehramt Gymnasium (Assessment Algebra and Geometry for Students Pursuing a Teaching Degree Gymnasium)

3 ECTS credits, numerical grading

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- oral examination of one candidate each (approx. 30 minutes). Assessment will have reference to the topics covered in module 10-M-ALG-L and in the module component selected by students.
- Language of assessment: German; English if agreed upon with examiner(s)
- Only after successful completion of module components: Module component 10-M-AGL-P can only be taken by students who passed the written examination in one of the other three module components.

Allocation of places

Additional information

Workload

Teaching cycle

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

§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie

§ 73 (1) 4. Mathematik Geometrie

Module appears in

LA Gymnasien Mathematics (2012)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	page 7 / 62
	data record Lehramt Gymnasien Mathematik - 2012	

Module title				Abbreviation	
Analysis for 1	eaching Degree Mathem	atics (German Gymna	asium)	10-M-ANL-122-m01	
Module coordinator M		Module offered by			
Dean of Stud	es Mathematik (Mathem	atics)	Institute of Mathem	natics	
ECTS Meth	od of grading	Only after succ. com	pl. of module(s)		
18 nume	erical grade				
Duration	Module level	Other prerequisites			
2 semester	undergraduate	By way of exception	, additional prerequi	isites are listed in th	e section on
Contents	<u> </u>	ussessments.			
Real numbers ries, different	and completeness, basi ial and integral calculus i	c topological notions, in one variable, introd	, convergence and d luction to differentia	ivergence of sequen l calculus in several	ces and se- variables.
Intended lear	ning outcomes				
The student k mathematica central proof	nows and masters the es l arguments and present methods and concepts ir	sential methods and them adequately in w analysis, their analy	notions of analysis. ritten and oral form. tic background and g	He/She is able to pe He/She is acquainte geometric interpreta	erform easy ed with the tion.
Courses (type,	number of weekly contact hours,	language — if other than Ger	man)		
component. • 10-M-A • 10-M-A • 10-M-A Method of as module is credita	NA-1-122: V + Ü (no inforn NA-2-122: V + Ü (no inforr NL-P-122: M (no informati sessment (type, scope, langua ble for bonus)	nation on SWS (weekl nation on SWS (weekl on on SWS (weekly co age — if other than German, e	y contact hours) and ly contact hours) and ontact hours) and co examination offered — if no	d course language av d course language av ourse language availa ot every semester, informati	railable) railable) able) ion on whether
Assessment i low. Unless s vidual assess	n this module comprises tated otherwise, success ments.	the assessments in t ful completion of the	he individual modul module will require s	e components as sp successful completio	ecified be- on of all indi-
Assessment i 8 ECTS, written can be i in group module Langua Other p turer w the cou obtaine put the assessi have to	n module component 10- Method of grading: (not) examination (approx. 90 replaced by an oral examin os (groups of 2, approx. 30 component was selected component for assessm ge of assessment: Germa rerequisites: Certain pre- ill inform students about trse will be considered a ed the qualification for ad ir registration for assessm ment in the current or in obtain the qualification	M-ANA-1-122: Analysis successfully complete to 180 minutes); if an nation of one candidate o minutes). Module with d as subject of the ora- ent purposes (Prüfung in, English if agreed u requisites must be me the respective detail declaration of will to mission to assessment nent into effect. Stude the subsequent seme for admission to asses	is 1 Analysis 1 ted nnounced by the lec te each (approx. 20 n ill also be considered al examination cover gsteilmodul)) and th pon with the examinent to qualify for adm ls at the beginning seek admission to nt over the course of ents who meet all pre- ester. For assessment anew.	turer, the written ex ninutes) or an oral ex d successfully compl ing several modules is examination was her ission to assessmen of the course. Regis assessment. If stud the semester, the le erequisites will be a nt at a later date, stu	amination amination eted if the (separate passed. It. The lec- tration for ents have ecturer will dmitted to idents will
Assessment	n module component 10-	M-ANA-2-122: Analys	is 2 Analysis 2		
 8 ECTS, written can be in group module Langua 	Method of grading: (not) examination (approx. 90 replaced by an oral examin os (groups of 2, approx. 30 e component was selected e component for assessm ge of assessment: Germa	successfully complet to 180 minutes); if an nation of one candidat o minutes). Module wi d as subject of the ora ent purposes (Prüfung an, English if agreed u	ted nnounced by the lec te each (approx. 20 n ill also be considered al examination cover gsteilmodul)) and th pon with the examir	turer, the written ex ninutes) or an oral ex d successfully compl ing several modules is examination was her	amination amination eted if the (separate passed.
LA Gymnasien Math	ematics (2012)	data record Le	• generated 26-Aug-2024 • 6 ehramt Gymnasien Mathema	tik - 2012	page 8 / 62

Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Assessment in module component 10-M-ANL-P-122: Examination in Analysis for Teaching Degree Mathematics (German Gymnasium)

- 2 ECTS, Method of grading: numerical grade
- oral examination of one candidate each (approx. 30 minutes); assessment will have reference to the contents of modules 10-M-ANA-1 and 10-M-ANA-2
- Language of assessment: German, English if agreed upon with the examiner

Allocation of places

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Additional information

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Workload

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Teaching cycle

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

§ 73 (1) 1. Mathematik Analysis

Module appears in

LA Gymnasien Mathematics (2012)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	page 9 / 6:
	data record Lehramt Gymnasien Mathematik - 2012	

Module	e title				Abbreviation
Applied man Gy	d Math /mnasi	ematics and Stochastics um)	for Teaching Degree	Mathematics (Ger-	10-M-ASL-122-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	pl. of module(s)	
16	nume	rical grade		-	
Duratio	n	Module level	Other prerequisites		
2 seme	ester	undergraduate	By way of exception assessments.	, additional prerequi	sites are listed in the section on
Conten	ts				
random sion, m ted valu mit the and eit Introdu applica Numeri ons and tegratic Numeri itial val Intendu The stu are req tral cor limitati	n varial nultista ue and orem, o her iction t ations, ical Ma d syste on), or ical Ma lue pro ed lear ident is uired for neepts a ons of	oles, important discrete of ge experiments, conditio variance, covariance and confidence intervals and o Discrete Mathematics cryptographic methods, e thematics 1 (Solution of ms of equations, interpo thematics 2 (Solution me blems for ordinary different ing outcomes acquainted with the bas for teaching mathematics and algorithms in this fie their applicability.	listributions, element nal probability, stoch l correlation, waiting statistical tests in bir (Techniques from con- error-correcting codes systems of linear equilation with polynomia attion with polynomia ethods and application ential equations, boun- ic concepts and meth in high school (Germ Id, can apply them in	ts of combinatorics, hastic independence time problems, law of nomial models, stock nbinatorics, introduc s), or lations and curve fitt als, splines and trigo ons for eigenvalue pr ndary value problem nods in applied math an Gymnasium). He/ dependently and kn	principle of inclusion and exclu- , common distributions, expec- of the large numbers, central li- nastic paradoxes) ction to graph theory including ing problems, nonlinear equati- nometric functions, numerical in- roblems, linear programming, in- s).
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
This mo 1 g 1 Method	odule h o-M-DI juage a o-M-AS d of ass	as 5 components; inform M-L-122, 10-M-NUM1-L-12 nd number of weekly cor GL-P-122: M (no information sessment (type, scope, langua	ation on courses list 2, 10-M-NUM2-L-122, tact hours available) on on language and r ge — if other than German, o	ed separately for eac , and 10-M-STO-L-122 number of weekly con examination offered — if no	ch component. 2: V + Ü (no information on lan- ntact hours available) 1t every semester, information on whether
module is	s creditab	le for bonus)			
This mo sessme	odule h ent com	as the following 5 assess ponents 10-M-ASL-P and	sment components. T I 10-M-STO-L- and one	o pass this module, e of the remaining th	students must pass the two as- ree assessment components.
Assess sium (I compo M-NUM Stocha • 7 • w	ment in ntroduc nent 10 12-L-12 stik für ECTS c vritten	n module component 10- ction to Discrete Mathem -M-NUM1-L-122: Numeris 2: Numerische Mathema Lehramt Gymnasium (St credits (10-M-STO-L-122: o examination (approx. 000	M-DIM-L-122: Einführ atics for Students Pu sche Mathematik 1 (N tik 2 (Numerical Math ochastics for Student 6 ECTS credits), pass	rung in die Diskrete <i>I</i> rsuing a Teaching De lumerical Mathemati nematics 2) , in modu rs Pursuing a Teachir / fail	Mathematik für Lehramt Gymna- egree Gymnasium), in module ics 1), in module component 10- le component 10-M-STO-L-122: ng Degree Gymnasium)

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Additional prerequisites: To qualify for admission to assessment, students must meet certain prerequisites. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Assessment in module component 10-M-ASL-P-122: Prüfung Angewandte Mathematik und Stochastik für Lehramt Gymnasium (Assessment Applied Mathematics and Stochastics for Students Pursuing a Teaching Degree Gymnasium)

- 3 ECTS credits, numerical grading
- oral examination of one candidate each (approx. 30 minutes). Assessment will have reference to the topics covered in module 10-M-STO-L and in the module component selected by students.
- Language of assessment: German; English if agreed upon with examiner(s)
- Only after successful completion of module components: Module component 10-M-ASL-P can only be taken by students who passed the written examination in one of the other four module components.

Allocation of places

Additional information

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Workload

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Teaching cycle

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

§ 73 (1) 3. Mathematik Stochastik

§ 73 (1) 5. Mathematik Angewandte Mathematik

Module appears in

LA Gymnasien Mathematics (2012)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	
	data record Lehramt Gymnasien Mathematik - 2012	

Module	e title				Abbreviation		
Differential Equations and Complex Analysis for Teaching Degree Mathematic					10-M-DFL-122-m01		
(Germa	(German Gymnasium)						
Module coordinator Mo				Module offered by			
Dean o	fStudie	es Mathematik (Mather	matics)	Institute of Mathem	natics		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
14	nume	rical grade					
Duratio	on	Module level	Other prerequisites				
2 seme	ster	undergraduate	By way of exception assessments.	, additional prerequi	isites are listed in th	e section on	
Conten	ts						
stems of ons, ba functio plex an	of linea asic not ns, me alysis,	r differential equation ions in the qualitative romorphic functions an applications in compu	s, introductions of ordinar s, introduction to the p theory of ordinary diffe id conformal maps, bas ter science, physics, er	roblem of systems o rential equations, ba sic proof methods in ngineering science an	f nonlinear differenti asic properties of hol differential equatior nd other fields of ma	al equati- lomorphic is and com- athematics.	
The stu equation	dent is	acquainted with the full acquainted with the full holomorphic function gacross the borders of	Indamental concepts a s. He/she is able to int different branches in n	nd methods of the the con- erconnect these con- nathematics.	neory of ordinary diff cepts and realises th	erential 1e advanta-	
Course	S (type n	umber of weekly contact hour	s language — if other than Ger	rman)			
• 1 • 1 • 1 Method module is low. Un	o-M-DG o-M-FT o-M-DF d of ass creditab ment ir aless st	GL-L-122: V + Ü (no info H-L-122: V + Ü (no infor L-P-122: M (no informa sessment (type, scope, lang le for bonus) n this module comprise ated otherwise, succes	rmation on SWS (weekly mation on SWS (weekly tion on SWS (weekly co mage – if other than German, so the assessments in t soful completion of the	y contact hours) and y contact hours) and ontact hours) and con examination offered — if no he individual module module will require s	l course language av course language ava urse language availa t every semester, informati e components as spe successful completio	ailable) ailable) ble) on on whether ecified be- on of all indi-	
Assess matics sium) • 6 • w c in n • L • C the the the the the the the the	ment ii (Germa ECTS, vritten o an be ro n group nodule nodule anguag Other pr urer wil he coul btaineo but thei ssessn ave to ment ii ics (Ge	ments. module component 10 an Gymnasium) Ordinal Method of grading: (no examination (approx. 9 eplaced by an oral exam s (groups of 2, approx. component was select component for assessing ge of assessment: Gern rerequisites: Certain pr ll inform students abour- rse will be considered d the qualification for as- registration for assessi- nent in the current or in obtain the qualification module component 10 rman Gymnasium) Intro-	b-M-DGL-L-122: Ordinary Differential Equation by Successfully completed to to 180 minutes); if a nination of one candidar 30 minutes). Module were as subject of the ora- ment purposes (Prüfung- nan, English if agreed ur erequisites must be mere ut the respective details a declaration of will to admission to assessme sment into effect. Stude of the subsequent seme of for admission to assess D-M-FTH-L-122: Introdu	ry Differential Equati s for Teaching Degre ted nnounced by the lec te each (approx. 20 m ill also be considered al examination cover gsteilmodul)) and th upon with the examin et to qualify for admi ls at the beginning of seek admission to nt over the course of ents who meet all pre- ester. For assessmen ssment anew. ction to Complex An- nalysis for Teaching I	ions for Teaching De- e Mathematics (Gerr turer, the written ex- ninutes) or an oral ex- d successfully compl ing several modules is examination was p er ission to assessmen of the course. Regis assessment. If stud the semester, the le erequisites will be ac at at a later date, stu alysis for Teaching D Degree Mathematics	gree Mathe- nan Gymna- amination amination eted if the (separate passed. it. The lec- tration for ents have ecturer will dmitted to idents will Degree Ma- 6 (German	
Gymna LA Gymnas	sium) ien Mathe	matics (2012)	JMU Würzburg	• generated 26-Aug-2024 • e	exam. reg.	page 12 / 62	

- UNIVERSITÄT WÜRZBURG
- 6 ECTS, Method of grading: (not) successfully completed
- written examination (approx. 90 to 180 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes). Module will also be considered successfully completed if the module component was selected as subject of the oral examination covering several modules (separate module component for assessment purposes (Prüfungsteilmodul)) and this examination was passed.
- Language of assessment: German, English if agreed upon with the examiner
- Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Assessment in module component 10-M-DFL-P-122: Examination in Differential Equa-tions and Complex Analysis for Teaching Degree Mathematics (German Gymnasium)

- 2 ECTS, Method of grading: numerical grade
- oral examination of one candidate each (approx. 30 minutes); assessment will have reference to the contents of modules 10-M-DGL-L and 10-M-FTH-L
- Language of assessment: German, English if agreed upon with the examiner
- Only after successful completion of module components: Successful completion of the written examination in any one of the other two module components is a prerequisite for participation in module component 10-M-DFL-P.

Allocation of places

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Additional information

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Workload

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Teaching cycle

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

§ 73 (1) 1. Mathematik Analysis

Module appears in

LA Gymnasien Mathematics (2012)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	page 13 / 62
	data record Lehramt Gymnasien Mathematik - 2012	

Module title					Abbreviation
Linear	Algebra	a for Teaching Degree Ma	Gymnasium)	10-M-LNL-122-m01	
Module	e coord	inator		Module offered by	
Dean of Studies Mathematik (Mathema			atics)	Institute of Mathematics	
ECTS	Metho	od of grading	Only after succ. compl. of module(s)		
18	nume	rical grade			
Duration Module level Other prerequisites					
2 semester undergraduate		By way of exception assessments.	, additional prerequi	isites are listed in the section on	

Contents

Basic notions and structures; vector spaces, linear maps and systems of linear equations; theory of matrices and determinants; eigenvalue theory; bilinear forms and Euclidean/unitary vector spaces; diagonalisability and Jordan normal form.

Intended learning outcomes

The student knows and masters the basic notions and essential methods of linear algebra. He/She is able to perform easy mathematical arguments independently, and can present them adequately in written and oral form. He/She is able to apply the central proof methods and concepts of linear algebra and knows about their algebraic and geometric background.

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-LNA-1-122: V + Ü (no information on SWS (weekly contact hours) and course language available)
- 10-M-LNA-2-122: V + Ü (no information on SWS (weekly contact hours) and course language available)
- 10-M-LNL-P-122: M (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-LNA-1-122: Linear Algebra 1 Linear Algebra 1

- 8 ECTS, Method of grading: (not) successfully completed
- written examination (approx. 90 to 180 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes). Module will also be considered successfully completed if the module component was selected as subject of the oral examination covering several modules (separate module component for assessment purposes (Prüfungsteilmodul)) and this examination was passed.
- Language of assessment: German, English if agreed upon with the examiner
- Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Assessment in module component 10-M-LNA-2-122: Linear Algebra 2 Linear Algebra 2

- 8 ECTS, Method of grading: (not) successfully completed
- written examination (approx. 90 to 180 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes). Module will also be considered successfully completed if the

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module component was selected as subject of the oral examination covering several modules (separate module component for assessment purposes (Prüfungsteilmodul)) and this examination was passed.

- Language of assessment: German, English if agreed upon with the examiner
- Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Assessment in module component 10-M-LNL-P-122: Examination in Linear Algebra for Teaching Degree Mathematics (German Gymnasium)

- 2 ECTS, Method of grading: numerical grade
- oral examination of one candidate each (approx. 30 minutes); assessment will have reference to the contents of modules 10-M-LNA-1 and 10-M-LNA-2
- Language of assessment: German, English if agreed upon with the examiner
- Only after successful completion of module components: Successful completion of the written examination in any one of the other two module components is a prerequisite for participation in module component 10-M-LNL-P.

Allocation of places

UNIVERSITÄT

WÜRZBURG

Additional information

Additional mion

Workload

Teaching cycle

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

§ 73 (1) 2. Mathematik Lineare Algebra, Algebra und Elemente der Zahlentheorie

Module appears in

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Module title			Abbreviation			
Introd	uction i	nto mathematical think	ing and working		10-M-MDA-122-m01	L
Modul	e coord	inator		Module offered by		
Dean	an of Studies Mathematik (Mathematics)		Institute of Mathem	atics		
ECTS	Metho	od of grading	Only after succ. con	Only after succ. compl. of module(s)		
4	(not)	successfully completed				
Durati	on	Module level	Other prerequisites			
1 seme	ester	undergraduate	By way of exception assessments.	, additional prerequi	sites are listed in th	e section on
Conte	nts		- -			
Logica tics, e	l founda . g. sets	ations of mathematical and functions; basic te	proofs, in particular ax chniques and method	kiomatic and deducti s for proving; mathe	on; basic concepts i matical writing.	n mathema-
Intend	led lear	ning outcomes				
The st form e oral fo	udent is asy mat rm.	acquainted with the ba thematical arguments in	asic proof methods and adependently and pres	d techniques in math sent them adequately	nematics. He/She is y and reasonably in	able to per- written and
Thicm	co (type, r		, language — Ir other than Ger		stad concretally for a	ach madula
compo • • •	onent. 10-M-M 10-M-M 10 of ass	DA-1-122: V + Ü (no info DA-2-122: V + Ü (no info Sessment (type, scope, lang	rmation on SWS (week rmation on SWS (week uage — if other than German,	ly contact hours) and ly contact hours) an examination offered — if no	d course language a d course language a t every semester, informati	vailable) vailable) ion on whether
module	is creditab	le for bonus)	.			
Asses: low. U vidual	sment in nless st assess	n this module comprise ated otherwise, succes ments.	s the assessments in t sful completion of the	he individual module module will require s	e components as sp successful completio	ecified be- on of all indi-
Assess sic No	sment in tions ar 2 ECTS, project a course) Languag Other pi turer wi the cou obtaine put thei assessn have to	n module component to ad Methods of Mathema Method of grading: (no assignments (type and ge of assessment: Germ rerequisites: Certain pro Il inform students abou rse will be considered d the qualification for a r registration for assess nent in the current or ir obtain the qualification	p-M-MDA-1-122: Basic atical Reasoning t) successfully comple expenditure of time to an, English if agreed u erequisites must be mu t the respective detai a declaration of will to dmission to assessme ment into effect. Study the subsequent seme for admission to asses	Notions and Method ted be specified by the l pon with the examin et to qualify for admi ls at the beginning o seek admission to nt over the course of ents who meet all pro- ester. For assessment assment anew.	s of Mathematical R ecturer at the beginn er ission to assessmen of the course. Regis assessment. If stud the semester, the le erequisites will be a it at a later date, stu	easoning Ba- ning of the it. The lec- tration for ents have ecturer will dmitted to idents will
Asses ting in •	 Assessment in module component 10-M-MDA-2-122: Reasoning and Writing in Mathematics Reasoning and Writing in Mathematics 2 ECTS, Method of grading: (not) successfully completed project assignments (type and expenditure of time to be specified by the lecturer at the beginning of the course) Language of assessment: German, English if agreed upon with the examiner Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will 					
LA Gymna	yut thei sien Mathe	matics (2012)	JMU Würzburg data record L	• generated 26-Aug-2024 • e ehramt Gymnasien Mathemat	erequisites will De av exam. reg. tik - 2012	page 16 / 62

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assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Allocation of places

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Additional information

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Workload

Teaching cycle

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

§ 73 (1) 5. Mathematik Angewandte Mathematik

Module appears in

Bachelor' degree (1 major) Mathematics (2012)

Bachelor' degree (1 major) Mathematics (2013)

Bachelor' degree (1 major) Economathematics (2012)

Bachelor' degree (1 major) Mathematical Physics (2012)

Bachelor' degree (1 major) Computational Mathematics (2012)

Bachelor' degree (1 major) Computational Mathematics (2013)

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Module title					Abbreviation
Advanc	Advanced Analysis for Teaching Degree Mathematics (German Gymnasium)				10-M-VAL-122-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)	
3	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 semester undergraduate		Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment will be admit-			
Conten	ts				
Continu	uation o	of analysis in several vari	ables.		
Intende	ed learr	ning outcomes			
The stu she is a	dent is Ible to	acquainted with advanc understand the construct	ed topics in analysis. tion of a complex ma	Taking the example the matical concept.	of the Lesbegue integral, he or
Courses	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V (no in	Iformat	ion on SWS (weekly cont	act hours) and cours	e language available	2)
Method module is	l of ass creditab	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 Langua	assign ge of a	ments (type and expendi ssessment: German, Eng	ture of time to be spe lish if agreed upon w	ecified by the lecture ith the examiner	er at the beginning of the course)
Allocati	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teaching cycle					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)				
§ 73 (1)	1. Mat	hematik Analysis			
Module	e appea	nrs in			
First sta	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2012)	

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Module title					Abbreviation
Introdu Gymna:	Introduction into Number Theory for Teaching Degree Mathematics (German 10-M-ZTL-122-m01 Gymnasium)				
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. com	pl. of module(s)	
4	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 semester undergraduate		Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for			
Conten	ts				
Elemen tests ar forms, o	tary pr nd met diopha	operties of divisibility, pr hods for factorisation, sti ntine approximation and	ime numbers and pri ructure of the residue diophantine equatio	me number factorisa class rings, theory o ns.	ation, modular arithmetics, prime of quadratic remainder, quadratic
Intende	ed lear	ning outcomes			
The stu	dent is	acquainted with the bas	ic concepts of numbe	er theory.	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
V (no ir	format	tion on SWS (weekly cont	act hours) and cours	e language available	2)
Methoo module is	d of ass creditab	sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
project Langua	assign ge of a	ments (type and expendi ssessment: German, Eng	ture of time to be spe lish if agreed upon w	ecified by the lecture ith the examiner	er at the beginning of the course)
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachir	Teaching cycle				
Referre	d to in	LPOI (examination regulation	s for teaching-degree progra	mmes)	
<u>9 73 (1)</u>	2. Mat	hematik Lineare Algebra	, Algebra und Elemen	te der Zahlentheorie	2
Module	e appea	nrs in			
First state examination for the teaching degree Gymnasium Mathematics (2012)					

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Teaching (10 ECTS credits)

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	data record Lehramt Gymnasien Mathematik - 2012	

Didactics of Mathematics: Algebra (German Gymnasium) Io-M-D1GY-122-mo1 Module coordinator Module coordinator Module coordinator Module offered by Dean of Studies Mathematik (Mathematics) Institute of Mathematics ECTS Method of grading Only after succ. compl. of module(s) a numerical grade Certain prerequisites must be met to qualify for admission to ass- sessment. The lecturer will inform students about the require details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment over the course of the semester, the lecturer will inform students about the requisites for the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment to effect. Students who meet all prequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment int offect. Students who meet all prequisites will be admit- ted to assessment at a later date, students will have to obtain the qualification for admission to assessment andew. Entende learning outcomes Intervent data data students will have to obtain the qualification for admission to assessment andew. Entende learning out comes Intervent a later date, students will have to obtain the chanlo- gies. Interded learning out comes Intervent a later date, students will have to obtain the chanlo- gies. Intervent as acquainted with basic mathematical ways of thinking and working techniques (in particular in the field of algebra in Sekundarstufe I) and is able to take into account the students perception of mathematical to- pics. He/She knows important aspects of planning and analysing teaching of mathematics, masters different strategies for the course of the semination of one candidate each (approx. 20 mit or 10 mit or 10 mit especies) advector of accomination or DSWS (weekly contact hours) and course language available	Module title					Abbreviation	
Module correlizator Module offered by Dean of Studies Mathematik (Mathematics) Institute of Mathematics ECTS Method of grading Only after succ. compl. of module(s) a numerical grade Duration Module level Other prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment over the course of the semester, the lecturer will put their registration for assessment over the course of the semester, the lecturer will inform their subsequent semester. For assessment in the fet: Students who meet all prequisites will be admitted to assessment at a later date, students will have to obtain the qualification for admission to assessment over the course of the semester, the lecturer will inform the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment over the sources of the semester. The assessment are used to assessment an extension of possibilities of implementation in the classroom, also including modern technologies. Institute of Mathematics Institute of Mathematics Institute of agebra in Sekundarstufe () and is able to take into account the students/perception of mathematical topics, He/She knows important aspects of planing and analysing teaching of mathematics, matters different strategies for teaching and learning und can assess them. Coursets (type, number of weekly contact hours.) and course language available) Me	Didact	ics of N	Athematics: Algebra	(German Gymnasium)		10-M-D1GY-122-m01	
Dean of Studies Mathematik (Mathematics) Institute of Mathematics ECTS Method of grading on umerical grade Only after succ. compl. of module(s) 3 numerical grade Duration Module level Other prerequisites sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment over the course of the semester, the lecturer will put their registration for as sessment in the current or in the subsequent semester. For as- sessment in the current or in the subsequent semester. For as- sessment in the current or in the subsequent semester. For as- sessment at later date, students will have to obtain the qualification for admission to assessment anew. Contents	Modul	e coord	inator		Module offered by		
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3 numerical grade Duration Module level Other prequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for ath course will be considered a declaration of will to seek admission to assessment in the current or in the subsequent semester. For assessment in the current or in the subsequent semester. For assessment in the current or in the subsequent semester. For assessment in a differet. Students will have to obtain the qualification for ath course. Seessment in the current or in the subsequent semester. For assessment in a different students will have to obtain the qualification of glass. Discussion of basic topics in mathematics didactics for Gymnasium using the example of algebra (Sekundarstufe 1) and is able to take into account the students perception of mathematical topics. He/She knows important aspects of planning and analysing teaching of mathematics, masters different strategies for teaching and learning und can assess them. Courses (type, number of weekly contact hours, language – if other than German, examination of net candidate each (approx. 40 minutes) or b) oral examination of net candidate each (approx. 20 minutes) or c) oral examination in groups of up to 3 candidates (groups of 2: approx. 30 minutes, groups of 3: approx. 45 minutes) or d) with electorer at the beginning of the course) Additional information	ECTS Method of grading		Only after succ. con	npl. of module(s)			
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The student is acquainted with basic mathematical ways of thinking and working techniques (in particular in the field of algebra in Sekundarstufe I) and is able to take into account the students' perception of mathematical topics, He/She knows important aspects of planning and analysing teaching of mathematics, masters different strategies for teaching and learning und can assess them. Courses (type, number of weekly contact hours, language — if other than German) 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) a) written examination (approx. 60 to 180 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups of up to 3 candidates (groups of 2: approx. 30 minutes, groups of 3: approx. 45 minutes) or d) written elaboration (approx. 5 to 10 pages) or e) project assignments (type and expenditure of time to be specified by the lecturer at the beginning of the course) Allocation of places	Intend	ed lear	ning outcomes				
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) a) written examination (approx. 60 to 180 minutes) or b) oral examination of one candidate each (approx. 20 mi- nutes) or c) oral examination in groups of up to 3 candidates (groups of 2: approx. 30 minutes, groups of 3: ap- prox. 45 minutes) or d) written elaboration (approx. 5 to 10 pages) or e) project assignments (type and expendi- ture of time to be specified by the lecturer at the beginning of the course) Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in	field o pics, H strateg	f algebr le/She gies for es (type, r	ra in Sekundarstufe I) knows important aspo teaching and learning	and is able to take into a ects of planning and ana g und can assess them. urs, language – if other than Ge	account the students lysing teaching of m	s'perception of mathematical to- athematics, masters different	
Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus) a) written examination (approx. 60 to 180 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups of up to 3 candidates (groups of 2: approx. 30 minutes, groups of 3: approx. 45 minutes) or d) written elaboration (approx. 5 to 10 pages) or e) project assignments (type and expenditure of time to be specified by the lecturer at the beginning of the course) Allocation of places	V + Ü (no info	rmation on SWS (wee	kly contact hours) and co	ourse language avail	able)	
a) written examination (approx. 60 to 180 minutes) or b) oral examination of one candidate each (approx. 20 mi- nutes) or c) oral examination in groups of up to 3 candidates (groups of 2: approx. 30 minutes, groups of 3: ap- prox. 45 minutes) or d) written elaboration (approx. 5 to 10 pages) or e) project assignments (type and expendi- ture of time to be specified by the lecturer at the beginning of the course) Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in	Metho module i	d of ass s creditab	s essment (type, scope, la ole for bonus)	nguage — if other than German,	examination offered — if no	ot every semester, information on whether	
Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in	a) writt nutes) prox. 4 ture of	ten exa or c) or 5 minu time to	mination (approx. 60 ral examination in gro tes) or d) written elab b be specified by the la	to 180 minutes) or b) ora ups of up to 3 candidate oration (approx. 5 to 10 ecturer at the beginning	al examination of one s (groups of 2: appro pages) or e) project a of the course)	e candidate each (approx. 20 mi- ox. 30 minutes, groups of 3: ap- assignments (type and expendi-	
Additional information Additional information Vorkload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in	Alloca	tion of _l	places				
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Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in	Additio	onal inf	ormation				
Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in							
Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in	Workload						
Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in							
Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in	Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes) § 73 (1) 6. Mathematik Didaktik Module appears in							
§ 73 (1) 6. Mathematik Didaktik Module appears in	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in	§ 73 (1) 6. Mathematik Didaktik						
	Module appears in						
First state examination for the teaching degree Gymnasium Mathematics (2012)	First st	ate exa	mination for the teac	hing degree Gymnasium	Mathematics (2012)		

LA Gymnasien Mathematics (2012)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	page 21 / 62
	data record Lehramt Gymnasien Mathematik - 2012	

Module title				Abbreviation	
Didactics of Mathematics: Geometry (German Gymnasium) 10-M-DGYG-122-m01					10-M-DGYG-122-m01
Module coordinator				Module offered by	
Dean of Studies Mathematik (Mathema			tics) Institute of Mathematics		atics
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
3	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 semester undergraduate		Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for			
Conten	ts				
Discuss stufe I) logies.	sion of as wel	basic topics in mathema l as discussion of possib	tics didactics for Gyn ilities of implementa	nnasium using the ex tion in the classroom	ample of geometry (Sekundar- n, also including modern techno-
Intende	ed learı	ning outcomes			
The stu field of topics, strateg	dent is geome He/Sh ies for t	acquainted with basic m etry in Sekundarstufe I) an e knows important aspec teaching and learning un	nathematical ways of nd is able to take into ts of planning and ar d can assess them.	thinking and workin account the studen nalysing teaching of	g techniques (in particular in the ts'perception of mathematical mathematics, masters different
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	rman)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
Methoo module is	d of ass creditab	s essment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	t every semester, information on whether
a) writt nutes) prox. 4 ture of	en exar or c) or 5 minut time to	nination (approx. 60 to 1 al examination in groups tes) or d) written elaborat be specified by the lectu	80 minutes) or b) ora of up to 3 candidate tion (approx. 5 to 10 p urer at the beginning	al examination of one s (groups of 2: appro pages) or e) project a of the course)	e candidate each (approx. 20 mi- ox. 30 minutes, groups of 3: ap- ossignments (type and expendi-
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Workload					
leaching cycle					
Kererred to In LPU I (examination regulations for teaching-degree programmes) 8 z2 (1) 6 Mathematik Didaktik					
Module	annea				
First sta	ate exa	mination for the teaching	degree Gymnasium	Mathematics (2012)	

LA Gymnasien Mathematics (2012)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	page 22 / 62
	data record Lehramt Gymnasien Mathematik - 2012	1

Module title				Abbreviation			
Didact	ics of M	athematics: Analysis	(German Gymnasium)		10-M-DGYA-122-mo	1	
Modul	e coord	inator		Module offered by			
Dean o	f Studi	es Mathematik (Mathe	matics)	Institute of Mathem	atics		
ECTS	Metho	od of grading	Only after succ. con	Only after succ. compl. of module(s)			
4	(not) s	successfully completed	1				
Duratio	on	Module level	Other prerequisites				
1 semester undergraduate		Certain prerequisite sessment. The lectu at the beginning of t sidered a declaratio dents have obtained the course of the se sessment into effec ted to assessment i sessment at a later admission to assess	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment anew.				
Conter	Its						
Discus darstut techno	sion of fe II) as logies.	advanced topics in ma well as discussion of p	thematics didactics for possibilities of impleme	r Gymnasium using t entation in the classr	ne example of analy oom, also including	sis (Sekun- modern	
Intend	ed lear	ning outcomes					
The stu of anal He/Sho for teac	ident is ysis in e knows ching a	acquainted with math Sekundarstufe II) and i s different aspects of p nd learning und can as	ematical ways of thinki s able to take into acco lanning and analysing sess them.	ing and working tech ount the students'per teaching of mathema	niques (in particular rception of mathema atics, masters differe	r in the field atical topics, ent strategies	
V ± Ü (no info	mation on SWS (week	v contact hours) and co	ninani	aple)		
Metho	d of ass	assment (type scope land	if other than Corman	ovamination offered if no	t overv comester informati	on on whother	
module i	s creditab	le for bonus)		examination offered — if no	t every semester, mormati	on on whether	
a) writt nutes) prox. 4 ture of	en exa or c) or 5 minu time to	mination (approx. 6o to al examination in grou tes) or d) written elabo be specified by the lea	o 180 minutes) or b) ora ps of up to 3 candidate ration (approx. 5 to 10 p cturer at the beginning	al examination of one s (groups of 2: appro pages) or e) project a of the course)	e candidate each (ap ox. 30 minutes, grou ussignments (type ar	oprox. 20 mi- ps of 3: ap- nd expendi-	
Allocat	ion of p	olaces					
Additio	onal inf	ormation					
Worklo	ad						
Teaching cycle							
Keterred to In LPU I (examination regulations for teaching-degree programmes)							
module appears in							
exchar	ate exa Ige prog	gram Mathematics (20	nig degree Gymnasium 23)	mathematics (2012)			
LA Gymnas	ien Mathe	matics (2012)	JMU Würzburg	• generated 26-Aug-2024 • 6	exam. reg.	page 23 / 62	
			data record L	ehramt Gymnasien Mathemat	ik - 2012		



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)

LA Gymnasien Mathematics (2012)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	page 25 / 62
	data record Lehramt Gymnasien Mathematik - 2012	

Module title					Abbreviation
Didactics of Mathematics: Analytic Geometry/Stochastics (German Gymnasi- um)					10-M-D3GY-092-m01
Module	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)	
3	(not) s	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	Its				
Discus stocha cluding	sion of stics (S g mode	basic topics in mathema ekundarstufe I) as well a rn technologies.	tics didactics for Gym s discussion of possi	nasium using the ex bilities of implemen	xamples of analytic geometry and tation in the classroom, also in-
Intend	ed lear	ning outcomes			
The stu fields c ceptior matics	ident is of analy n of ma , maste	acquainted with basic m tic geometry and stochas thematical topics, He/Sh rs different strategies for	nathematical ways of stics in Sekundarstufe e knows important as teaching and learnin	thinking and workin e I) and is able to tal spects of planning a g und can assess th	g techniques (in particular in the ke into account the students'per- nd analysing teaching of mathe- em.
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
V (no ii	nformat	ion on SWS (weekly cont	act hours) and course	e language available	e)
Metho module is	d of ass s creditab	sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
a) writt or c) or ges) or Assess	en exa ral exan r e) proj sment o	mination (approx. 60 mir nination in groups (group ect (as specified at the b ffered: every two years, s	utes) or b) oral exam is of 3, approx. 30 min eginning of the course ummer semester	ination of one candi nutes) or d) written e e)	date each (approx. 15 minutes) elaboration (approx. 5 to 10 pa-
Allocat	tion of p	olaces			
Additio	onal inf	ormation			
Worklo	ad				
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Modul	Module appears in				
First st	ate exa	mination for the teaching	g degree Gymnasium	Mathematics (2012)	
First st	First state examination for the teaching degree Gymnasium Mathematics (2009)				

LA Gymnasien Mathematics (2012)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	page 26 / 62
	data record Lehramt Gymnasien Mathematik - 2012	

Module title				Abbreviation	
Computers in Mathematical Teaching					10-M-DCMU-092-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	pl. of module(s)	
3	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	undergraduate			
Conten	ts				
Discuss puter to	ion of ools.	possible ways to use con	nputers in teaching m	athematics as well a	as discussion of common com-
Intende	ed leari	ning outcomes			
The stu tics, as	dent is well as	acquainted with basic p with the potential and li	ossibilities for the em mitations of compute	ployment of computer tools.	ters in the teaching of mathema-
Courses	5 (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V (no in	Iformat	ion on SWS (weekly cont	act hours) and course	e language available)
Method module is	l of ass creditab	e essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
project Assessi	(type a ment o	nd expenditure of time to ffered: every two years, s	b be specified by the ummer semester	lecturer at the begin	ning of the course)
Allocati	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachir	ng cycl	9			
Referre	d to in	LPOI (examination regulations	s for teaching-degree progra	mmes)	
Module	appea	irs in			
First sta	ate exa	mination for the teaching	degree Hauptschule	Mathematics (2009)
First sta	ite exa	mination for the teaching	degree Hauptschule	Didactics in Mathem	natics (Secondary School) (2009)
First state examination for the teaching degree Realschule Mathematics (2009)					
First state examination for the teaching degree Gymnasium Mathematics (2012)					
First sta	ite exa	mination for the teaching	degree Sonderpädas	gogik Didactics in Ma	athematics (Secondary School)
(2009)					
First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2013)					
First sta First sta	ate exa ate exa	mination for the teaching mination for the teaching	degree Mittelschule degree Mittelschule	Mathematics (2013) Didactics in Mathem	natics (Middle School) (2013)

Advarue Joint Sector Sect	Module title Abbreviation					Abbreviation	
Module correction Module offered by Dean of Studies Mathematik (Mathematik (Mathematics) Institute of Mathematics ECTS Method of grading Only after succ. completed Image: Studies of Studies o	Advance	Advanced Didactics of Mathematics (German Gymnasium) 10-M-DVGY-092-m01					
Dean of Studies Mathematik (Mathematics) Institute of Mathematics ECTS Metro f grading Only after succ. compl. of module(s) 2 (not) = secsifully completed Duration Modue level Other prerequisites 1 semester undergraduate Contents Discussion of topics in teaching mathematics in a Gymnasium taking into account different aspects, in particular mathematics in doudations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intended teaming subject-specific, didactical and methodical aspects. Courses (type, number of weekly contact hours, language – if other than German) S S (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) Ialk (approx. 6c on inutes) Assessment of places Additoral team of the regulation for team of regulations for teaching-degree programmes) Freed to in LPO I (examination regulations for teaching-degree Gymnasium Mathematics (202) <t< td=""><td>Module</td><td>coord</td><td>inator</td><td></td><td>Module offered by</td><td></td></t<>	Module	coord	inator		Module offered by		
ECTS Metwork organing Only after succ. compl. of module(s) 2 (not) successfully completed Duration Module level Other prerequisites 1 semester undergraduate Conterstermatical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intermatical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intermatical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intermatical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intermatical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intermatical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intermatical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intermatical foundations (didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intermatical foundations, didactic and velocies and issues on teaching mathematics didactics as well as possible approaches in the classroom. Intermatical foundations (guadap	Dean of	Studie	es Mathematik (Mathema	atics)	Institute of Mathem	atics	
2 (not) successfully completed Module level Other prerequisites 1 sem ≤ter undergraduate Contents Discussion of topics in teaching mathematics in a Gymnasium taking into account different aspects, in particular mathematical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intended learning outcomes The student is able to discuss central topics and issues on teaching mathematics in high school (German Gymnasium), considering subject-specific, didactical and methodical aspects. Courses (type, number of weekly contact hours, language – if other than German) S (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) Latk (aptrox. 60 minutes) Additional information Contender det in LPO 1 (examination regulations for teaching degree programmes)	ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
Duration Module level Other prerequisites 1 semester undergraduate Contents Discussion of topics in teaching mathematics in a Gymnasium taking into account different aspects, in particular mathematical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intended learning outcomes The student is able to discuss central topics and issues on teaching mathematics in high school (German Gymnasium), considering subject-specific, didactical and methodical aspects. Courses (type, number of weekly contact hours, language – if other than German) S (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 offered: once a year, summer semester Allocation of places Additional information Teaching cycle	2	(not) s	successfully completed				
n semester undergraduate	Duratio	n	Module level	Other prerequisites			
Contents Discussion of topics in teaching mathematics in a Gymnasium taking into account different aspects, in particular mathematical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intended learning outcomes Intended learning subject-specific, didactical and methodical aspects. Courses (type, number of weekly contact hours, language – if other than German) S (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) talk (approx. 60 minutes) Assessment offered: once a year, summer semester Allocation of places Additional information Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2012)	1 semes	ster	undergraduate				
Discussion of topics in teaching mathematics in a Gymnasium taking into account different aspects, in particu- lar mathematical foundations, didactic analyses, contemporary discussions in mathematics didactics as well as possible approaches in the classroom. Intended learning outcomes The student is able to discuss central topics and issues on teaching mathematics in high school (German Gym- nasium), considering subject-specific, didactical and methodical aspects. Courses (type, number of weekly contact hours, language – if other than German) S (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) talk (approx. 60 minutes) Assessment offered: once a year, summer semester Allocation of places 	Content	S					
Intended learning outcomes The student is able to discuss central topics and issues on teaching mathematics in high school (German Gym- nasium), considering subject-specific, didactical and methodical aspects. Courses (type, number of weekly contact hours, language – if other than German) S (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) talk (approx. 60 minutes) Assessment offered: once a year, summer semester Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Discuss lar math possible	ion of nemati e appro	topics in teaching mathe cal foundations, didactic paches in the classroom.	matics in a Gymnasiı analyses, contempo	um taking into accou rary discussions in r	nt different aspects, in particu- nathematics didactics as well as	
The student is able to discuss central topics and issues on teaching mathematics in high school (German Gym- nasium), considering subject-specific, didactical and methodical aspects. Courses (type, number of weekly contact hours, language – if other than German) S (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) talk (approx. 60 minutes) Assessment offered: once a year, summer semester Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Intende	d learr	ning outcomes				
Courses (type, number of weekly contact hours, language – if other than German) S (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) talk (approx. 60 minutes) Assessment offered: once a year, summer semester Allocation of places Additional information Workload Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	The stuc nasium)	dent is), cons	able to discuss central to discuss central to idering subject-specific,	opics and issues on t didactical and metho	eaching mathemation dical aspects.	cs in high school (German Gym-	
S (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) talk (approx. 60 minutes) Assessment offered: once a year, summer semester Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Courses	i (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus) talk (approx. 60 minutes) Assessment offered: once a year, summer semester Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	S (no in	format	ion on SWS (weekly cont	act hours) and cours	e language available	2)	
talk (approx. 60 minutes) Assessment offered: once a year, summer semester Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Method module is	of ass creditab	essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
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Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Allocati	on of p	olaces				
Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)							
Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Additio	nal info	ormation				
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Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Workloa	ad					
Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)							
Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)							
 Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)							
First state examination for the teaching degree Gymnasium Mathematics (2012) First state examination for the teaching degree Gymnasium Mathematics (2009)	Module appears in						
	First sta First sta	te exa te exa	mination for the teaching mination for the teaching	degree Gymnasium degree Gymnasium	Mathematics (2012) Mathematics (2009)		

Module title					Abbreviation
Hands-	on Mat	hematics		10-M-PRM-122-m01	
Module	e coord	inator		Module offered by	
Dean of	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	atics
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
6	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
2 seme	ster	undergraduate			
Conten	ts				
papers shops. topic, s in grou work. Ir pupils a	(Facha In the t search f ps with n the pr and aft	rbeiten), Pluskurse (addi theoretical phase, the stu- for a suitable topic, elabor students providing each ractical phase, the studen erwards reflect the plann	tional courses for the idents formulate the orate this topic for the other with advice as nts prepare the imple ing and implementat	e in-depth study of a subject-specific and project and draw up well as challenging ementation of the pro ion.	reas of special interest), work- didactic requirements of the o a project plan. This is done and reflecting on each other's oject, implement the project with
Intende	ed lear	ning outcomes			
The stu quainte	dent ia ed with	s able to select a suitabl different spects of projec	e mathematical topic ct planning and mana	for a school project agement, and can cri	and elaborate it. He/She is ac- tically reflect the process.
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
P + S (n	o infor	mation on SWS (weekly o	contact hours) and co	urse language availa	able)
Methoo module is	d of ass creditab	sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
project with pu	and im Ipils (ty	plementation thereof: dr pe and expenditure of tir	awing up a project pl ne to be specified by	an (approx. 10 page the lecturer at the b	s) and practical implementation eginning of the course)
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Workload					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module	e appea	ars in			
First sta	First state examination for the teaching degree Gymnasium Mathematics (2012)				

Module title					Abbreviation
Mathe	matics	in Culture and Society			10-M-MKG-122-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. con	npl. of module(s)	
8	(not)	successfully completed			
Duratio	on	Module level	Other prerequisites		
2 seme	ester	undergraduate	By way of exception assessments.	, additional prerequ	isites are listed in the section on
Conten	Its				
Historio the fun image	cal and damen of math	cultural development as itals of mathematics, in p nematics in modern socie	well as social releva particular in its relatio ety.	nce of mathematics; in to other sciences a	more in-depth discussion of and humanities as well as to the
Intend	ed lear	ning outcomes			
Based tical th audien	on sele eories ce.	ected examples, the stude and their social relevance	ent has gained insigh e. He/she is able to p	nt into the historical a present mathematica	and cultural genesis of mathema- l ideas and concepts to a general
Course	S (type, r	number of weekly contact hours, I	anguage — if other than Ge	rman)	
 This module has 4 components; information on courses listed separately for each component. 10-M-GES-1-122, 10-M-MSC-1-122, and 10-M-SCH-1-122: V + Ü (no information on language and number of weekly contact hours available) 10-M-PRO-1-122: S (no information on language and number of weekly contact hours 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)					
This mo	odule h	has the following 4 asses	sment components. 1	o pass the module a	as a whole students must pass

two of the four assessment components.

Assessment in module component 10-M-GES-1-122: Ausgewählte Kapitel aus der Geschichte der Mathematik (Selected Topics from the History of Mathematics), **in module component 10-M-MSC-1-122:** Mathematisches Schreiben (Mathematical Writing), and **in module component 10-M-SCH-1-122:** Schulmathematik vom höheren Standpunkt (School Mathematics from a Higher Perspective) **:**

- 4 ECTS credits, pass / fail
- project assignments (type and expenditure of time to be specified by the lecturer at the beginning of the course)
- Assessment will be offered in the semester in which the course is offered and in the subsequent semester.
- Language of assessment: German; English if agreed upon with examiner(s)
- Additional prerequisites: To qualify for admission to assessment, students must meet certain prerequisites. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Assessment in module component 10-M-PRO-1-122: Proseminar Mathematik (Proseminar Mathematics)

- 4 ECTS credits, pass / fail
- talk (approx. 60 to 180 minutes)
- Assessment will be offered in the semester in which the course is offered and in the subsequent semester.
- Language of assessment: German; English if agreed upon with examiner(s)
- Additional prerequisites: To qualify for admission to assessment, students must meet certain prerequisites. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If stu-

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	data record Lehramt Gymnasien Mathematik - 2012	

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dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Allocation of places

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Additional information

Additional information on module duration: 1 to 2 semesters.

Workload

Teaching cycle

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

Module appears in

Bachelor' degree (1 major) Mathematics (2012)

Bachelor' degree (1 major) Mathematics (2013)

Bachelor' degree (1 major) Computational Mathematics (2012)

Bachelor' degree (1 major) Computational Mathematics (2013)

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Module title				Abbreviation	
School Mathematics from a Higher Perspective					10-M-SCH-122-m01
Module	e 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	pl. of module(s)	
4	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
2 semester undergraduate		Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for			
Conten	ts				
Discuss their di	sion of dactic i	selected topics in schoo implementation at both s	l mathematics with re school and university	espect to their integrates levels.	ation into wider theories and
Intende	ed learı	ning outcomes			
By mea and adv thodica	ns of s vanced Il aspec	elected examples, the st mathematical theories. ct.	udent gains insight ir He/She is able to dis	nto the interrealtion cuss these under ma	between school mathematics athematical, didactical and me-
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	no infor	mation on SWS (weekly	contact hours) and co	ourse language avail	able)
Methoo module is	d of ass creditab	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 Assess Langua	assign ment o ge of a	ments (type and expend ffered: in the semester ir ssessment: German, Eng	iture of time to be spe which the course is lish if agreed upon w	ecified by the lecture offered and in the su ith the examiner	er at the beginning of the course) Ibsequent semester
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Additio	nal info	ormation on module dura	tion: 1 to 2 semester	5.	
Workload					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module	e appea	irs in			
FIRST Sta	First state examination for the teaching degree Gymnasium Mathematics (2012)				



Module	Module title				Abbreviation	
Seminar Mathematics					10-M-SEM-122-m01	
Module	e coord	inator		Module offered by		
Dean o	of Studi	es Mathematik (Mathem	natics)	Institute of Mathem	natics	
ECTS	Meth	od of grading	Only after succ. con	pl. of module(s)		
5	(not)	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 semester		undergraduate	Certain prerequisite sessment. The lectu at the beginning of t sidered a declaratio dents have obtained the course of the se sessment into effect ted to assessment in sessment at a later admission to assess	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification fo admission to assessment anew.		
Conten	its					
A selec	ted top	oic in mathematics.				
Intend	ed lear	ning outcomes				
The stu of a giv ly in a s	udent g ven top scientif es (type, r	ains first experience wit ic using selected literatu ic discussion. number of weekly contact hours	h independent scienti ure, and prepares a tal , language — if other than Ger	fic work. He/She ma k on the subject. He man)	sters elaboration an /She is able to partio	d structuring cipate active-
S (no ir	nforma	tion on SWS (weekly cor	ntact hours) and cours	e language available	e)	
Metho module is	d of ass s creditab	s essment (type, scope, langu ole for bonus)	age — if other than German, o	examination offered — if no	t every semester, informati	on on whether
talk (ap Langua	pprox. e age of a	50 to 180 minutes) ssessment: German, En	glish if agreed upon w	ith the examiner		
Allocat	tion of _l	places				
Additio	onal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulatio	ns for teaching-degree progra	mmes)		
Module appears in						
Bachelor' degree (1 major) Mathematics (2012)						
Bachelor' degree (1 major) Mathematics (2013)						
Bachelor' degree (1 major) Mathematical Physics (2012)						
Bachelor' degree (1 major) Computational Mathematics (2012)						
First state examination for the teaching degree Gymnasium Mathematics (2012)						
11151 51			is active cynnasian	mathematics (2012)		
LA Gymnas	sien Mathe	ematics (2012)	JMU Würzburg data record Lu	• generated 26-Aug-2024 • e ehramt Gymnasien Mathema	exam. reg. tik - 2012	page 34 / 62



Module title					Abbreviation	
Computational Mathematics					10-M-COM-122-m01	
Module	e coord	inator		Module offered by		
Dean o	f Studi	es Mathematik (Mathe	matics)	Institute of Mathem	atics	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
4	(not) s	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 semester undergraduate		Certain prerequisite sessment. The lectu at the beginning of t sidered a declaratio dents have obtained the course of the se sessment into effect ted to assessment in sessment at a later admission to assess	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for			
Conten	ts		•			
Introdu merica 10-M-A lar diffe	iction to l compi NL) and erential	o modern mathematica utation (e.g. Matlab) to d 10-M-LNA). Computer and integral calculus;	l software for symbolic supplement the basic based solution of prob visualisation of functio	computation (e.g. M modules in analysis plems in linear algeb ns.	Mathematica or Mapl and linear algebra (ra, geometry, analys	e) and nu- (10-M-ANA or is, in particu-
Intende	ed lear	ning outcomes				
The stu fields c	dent le of appli	earns the use of advance cation to solve mathen	ed modern mathemationatical problems.	cal software package	es, and is able to ass	ess their
Course	S (type, r	number of weekly contact hour	s, language — if other than Ger	rman)		
v + Ü (r	no infoi	mation on SWS (weekl	y contact hours) and co	ourse language avail	able)	
Metho module is	d of ass creditab	sessment (type, scope, lang le for bonus)	uage — if other than German, o	examination offered — if no	t every semester, informati	on on whether
project beginn Langua	in the ing of t ige of a	form of programming e he course) ssessment: German, E	xercises (type and expe	enditure of time to be	e specified by the lea	cturer at the
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in						
Bachel	or' deg	ree (1 major) Nanostru	ture Technology (2012))		
Bachelor' degree (1 major) Athematical Physics (2012)						
Bachelor' degree (1 major) Functional Materials (2012)						
LA Gymnas	ien Mathe	matics (2012)	JMU Würzburg data record Le	• generated 26-Aug-2024 • e ehramt Gymnasien Mathema	exam. reg. tik - 2012	page 35 / 62



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	data record Lehramt Gymnasien Mathematik - 2012	

Module	title				Abbreviation
Programming course for students of Mathe			athematics and othe	r subjects	10-M-PRG-122-m01
Module coordinator				Module offered by	
Dean of	Studie	es Mathematik (Mathema	atics)	tics) Institute of Mathematics	
ECTS	Metho	od of grading	Only after succ. compl. of module(s)		
3	(not) s	successfully completed			
Duration	n	Module level	Other prerequisites		
1 semester undergraduate		Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment anew.			
Content	S				
Basics o	of a mo	odern programming langı	uage (e.g.C).		
Intende	d learr	ning outcomes			
The stuc in mathe	dent is ematic	able to work independe s.	ntly on small program	nming exercises and	standard programming problems
Courses	i (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
P (no inf	format	ion on SWS (weekly cont	act hours) and course	e language available	.)
Method module is	of ass creditab	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 i beginnii Languag	in the f ng of tl ge of a	form of programming exe he course) ssessment: German, Eng	rcises (type and expe	enditure of time to be ith the examiner	e specified by the lecturer at the
Allocati	on of p	olaces	<u> </u>		
	·		,		
Additior	nal info	ormation			
Workloa	ad				
Teachin	g cycl	e			
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module appears in					
Bachelor' degree (1 major) Nanostructure Technology (2012) Bachelor' degree (1 major) Economathematics (2012) Bachelor' degree (1 major) Mathematical Physics (2012) Bachelor' degree (1 major) Functional Materials (2012) First state examination for the teaching degree Gymnasium Mathematics (2012)					
This state examination for the teaching degree Gymnasian Mathematics (2012)					

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	data record Lehramt Gymnasien Mathematik - 2012	

Module	title				Abbreviation
Selecte	Selected Topics from Mathematics for Teaching Degree Mathematics (German			thematics (German	10-M-ELG-122-m01
Gymna	sium)				
Module	e coord	inator		Module offered by	
Dean o	f Studie	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
8	(not)	successfully completed			
Duratio	n	Module level	Other prerequisites		
2 seme	ster	undergraduate	By way of exception assessments.	, additional prerequi	isites are listed in the section on
Conten	ts				
An add ching d	itional egree p	lecture in pure or appliec programme Gymnasium.	d mathematics which	is not covered in the	e mandatory courses of the tea-
Intende	ed learı	ning outcomes			
The stu se fund	dent is lament	acquainted with advanc al mathematical concept	ed concepts and met s and methods he/sh	hods in pure or appl ie is able to persue f	lied mathematics. Based on the- Further studies.
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
 1 1 1 	o-M-GA o-M-FA o-M-OF	N-1-122: V + Ü (no inform N-1-122: V + Ü (no inform S-1-122: V + Ü (no inform	nation on language an ation on language an nation on language ar	nd number of weekly id number of weekly id number of weekly	v contact hours available) contact hours available) v contact hours available)
Metho	l of ass	Sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
This mo one of	odule h the thre	as the following 3 assesses assessment component	sment components. T nts.	o pass the module a	as a whole students must pass
Assess 8 w c in n c in n c in n c in n c in n c in n c in n c c in n c c in n c c in n c	ment c ECTS of vritten of an bero ngroup nodule nodule anguag other proversies nform s vill be of ualifica tration n the cu	omponent to module con credits, method of gradin examination (approx. 90 eplaced by an oral examin s (groups of 2, approx. 30 component was selected component for assessme ge of assessment: English rerequisites: Admission es. Certain prerequisites tudents about the respe considered a declaration ation for admission to ass for assessment into effe- urrent or in the subsequent	nponent 10-M-GAN-1- g: (not) successfully to 180 minutes); if an nation of one candidate o minutes). Module wi d as subject of the ora- ent purposes (Prüfung n, German if agreed u prerequisite to assess must be met to qual ctive details at the be of will to seek admis- sessment over the con- ct. Students who mee nt semester. For asse	•122: Geometrische A completed nnounced by the lect te each (approx. 20 n ill also be considered al examination cover gsteilmodul)) and th pon with the examination sify for admission to eginning of the cour sion to assessment. urse of the semester et all prerequisites w ssment at a later dat	Analysis Eturer, the written examination ninutes) or an oral examination d successfully completed if the ing several modules (separate is examination was passed. ner completion of approx. 50% of assessment. The lecturer will se. Registration for the course If students have obtained the , the lecturer will put their regi- vill be admitted to assessment te, students will have to obtain
Assess 8 w c in n L C	ment c ECTS of vritten of an be ro ngroup nodule nodule anguag	omponent to module con credits, method of gradin examination (approx. 90 eplaced by an oral examin s (groups of 2, approx. 30 component was selected component for assessme ge of assessment: English rerequisites: Admission	nponent 10-M-FAN-1- g: (not) successfully to 180 minutes); if an nation of one candidate minutes). Module with as subject of the ora ent purposes (Prüfung n, German if agreed u prerequisite to assess	122: Einführung in d completed nnounced by the lec te each (approx. 20 n ill also be considered il examination cover gsteilmodul)) and th pon with the examination component: successful o	ie Funktionalanalysis turer, the written examination ninutes) or an oral examination d successfully completed if the ing several modules (separate is examination was passed. ner

exercises. Certain prerequisite	es must be met to qualify for admission to assessment. The le	cturer will
A Gymnasien Mathematics (2012)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	page 38 / 62
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inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Assessment component to module component 10-M-ORS-1-122: Operations Research

- 8 ECTS credits, method of grading: (not) successfully completed
- written examination (approx. 90 to 180 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes). Module will also be considered successfully completed if the module component was selected as subject of the oral examination covering several modules (separate module component for assessment purposes (Prüfungsteilmodul)) and this examination was passed.
- Language of assessment: English, German if agreed upon with the examiner
- Other prerequisites: Admission prerequisite to assessment: successful completion of approx. 50% of exercises. Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Allocation of places

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Additional information

Additional information on module duration: 1 to 2 semesters.

Workload

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Teaching cycle

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

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Module appears in

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	data record Lehramt Gymnasien Mathematik - 2012	

Module	e title				Abbreviation	
Exercise tutor or proof-reading in Mathematics 10-M-TuKo-092-m01			10-M-TuKo-092-m01			
Module coordinator		Module offered by				
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	atics	
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	undergraduate	Special qualificatior dinator Mathematik	n required; please di (Mathematics), he/s	rect application to teaching coor- she will select participants.	
Conten	ts					
Tutorin der sup	g or gra pervisio	ading homework for one on of the respective lectur	of the basic courses i rer or exercise superv	n the Bachelor's or t isor.	eaching degree programmes un-	
Intende	ed lear	ning outcomes				
The stu mistake	dent is es in m	able to support the acqu athematical proof exercis	uisition of mathemati ses and to find possil	cal skills and knowle ole solutions.	edge. He/She helps to identify	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
Ä (no ir	format	ion on SWS (weekly cont	act hours) and cours	e language available	e)	
Methoo module is	d of ass creditab	Sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
tutorinរ្ supervi	g and c isors at	orrecting activities to be the beginning of the cou	assessed by supervis	ing lecturers or exer	cise supervisors as specified by	
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)		
Module	e appea	ars in				
Bachel	Bachelor' degree (1 major) Mathematics (2014)					
Bachel	Bachelor' degree (1 major) Mathematics (2012)					
Bachel	Bachelor' degree (1 major) Mathematics (2013)					
Bachel	Bachelor' degree (1 major) Economathematics (2009)					
	Bachelor' degree (1 major) Economathematics (2012) Bachelor' degree (1 major) Mathematical Physics (2012)					
Bachel	or' deg	ree (1 major) Computation	nal Mathematics (2012)	14)		
Bachel	or' deg	ree (1 major) Computation	nal Mathematics (20)	, 13)		
First sta	ate exa	mination for the teaching	degree Gymnasium	Mathematics (2012)		

Modul	Module title Abbreviation						
E-Learning and Blended Learning in Mathematics at school 10-M-DVHB-092-m01							
Modul	e coord	inator		Module offered by			
Dean o	of Studio	es Mathematik (Mather	natics)	tics) Institute of Mathematics			
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 semesterundergraduateCertain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective detail at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as sessment into effect. Students who meet all prerequisites will be admited ted to assessment in the current or in the subsequent semester. For as sessment at a later date, students will have to obtain the qualification for admission to assessment anew. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathematics are always incor- porated into a module with an exercise. The respective modules can be identified by the word virtuell (online) added in brackets. Registration the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise was successful ly completed, the lecturer will put the registration for assessment into for at the exercise was dof the course.				as- tive details ll be con- nt. If stu- ssment over tion for as- ill be admit- ster. For as- alification by Virtuelle rays incor- ules can be gistration for inning of the a declaration successful- ment into ef-			
Conter	nts						
In a co technio	urse off ques in	ered by Virtuelle Hochs e-learning and blended	schule Bayern (vhb), th d learning for teaching	e student becomes a mathematics.	acquainted with and	reflects on	
Intend	ed lear	ning outcomes					
The stu well as	udent is their p	acquainted with basic otentials and limitation	methods of e-learning is.	and blended learnin	ig in teaching methe	matics, as	
Course	S (type, r	number of weekly contact hour	s, language — if other than Ger	rman)			
Ü (no i	nforma	tion on SWS (weekly co	ntact hours) and cours	e language available	2)		
Metho module i	d of ass s creditab	sessment (type, scope, lang le for bonus)	uage — if other than German, e	examination offered — if no	t every semester, informati	on on whether	
web-ba course	ased pr	oject assignments and	tests (length/expendit	ure of time to be ann	ounced at the begin	ining of the	
Allocat	tion of p	olaces					
Additio	onal inf	ormation					
Workload							
Teaching cycle							
Referred to in LPO I (examination regulations for teaching-degree programmes)							
LA Gymnas	sien Mathe	matics (2012)	JMU Würzburg data record Le	• generated 26-Aug-2024 • e ehramt Gymnasien Mathemat	exam. reg. ik - 2012	page 41 / 62	



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

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

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

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

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

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

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

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

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

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

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Module	Module title Abbreviation							
Mathen	Mathematics 1 (virtual course)				10-M-VHBMa1-122-1	m01		
Module	coord	inator		Module offered by				
Dean of	Studie	es Mathematik (Mathen	natics)	Institute of Mathem	atics			
ECTS	Metho	od of grading	Only after succ. com	Only after succ. compl. of module(s)				
2	(not) s	successfully completed						
Duratio	n	Module level	Other prerequisites					
1 semester undergraduate			Certain prerequisite sessment. The lectu at the beginning of t sidered a declaratio dents have obtained the course of the set sessment into effect ted to assessment in sessment at a later of for admission to ass Hochschule Bayern porated into a modu identified by the wo the exercise must al course. This registra of will to seek admis ly completed, the lef	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment anew. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathematics are always incor- porated into a module with an exercise. The respective modules can be identified by the word virtuell (online) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise will be considered a declaration of will to seek admission to assessment. If the exercise was successful- ly completed, the lecturer will put the registration for assessment into ef-				
Conten	Contents							
Discuss fundam	ion of entals	basic topics on teachin concerning the organis	g mathematics in a Gy ation of classes.	mnasium, in particu	lar verbal and subjee	ct-specific		
Intende	d learı	ning outcomes						
The stu conside	dent is ering be	able to discuss selecte oth subject-related and	d topics and question methodical aspects.	s on teaching mathe	matics at German Gy	/mnasium,		
Courses	5 (type, n	umber of weekly contact hours	, language — if other than Ger	man)				
Ü (no in	Iformat	ion on SWS (weekly co	ntact hours) and cours	e language available	2)			
Method module is	l of ass creditab	e essment (type, scope, langu le for bonus)	age — if other than German, e	examination offered — if no	t every semester, informati	on on whether		
web-ba course)	sed pr	pject assignments and t	ests (length/expendite	ure of time to be ann	ounced at the begin	ning of the		
Allocati	ion of p	olaces						
Additio	nal inf	ormation						
Workload								
Teachin	Teaching cycle							
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)							
LA Gymnasi	en Mathe	matics (2012)	JMU Würzburg data record Le	• generated 26-Aug-2024 • e ehramt Gymnasien Mathemat	exam. reg. tik - 2012	page 43 / 62		

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Module	title				Abbreviation		
Mathematics 2 (virtual course)				10-M-VHBMa2-122-	m01		
Module	coord	inator		Module offered by			
Dean of	f Studie	es Mathematik (Mather	natics)	rics) Institute of Mathematics			
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)			
2	(not) s	successfully completed		<u>, , , , , , , , , , , , , , , , , , , </u>			
Duratio	n	Module level	Other prerequisites				
Induct eventOther prerequisites1 semesterundergraduateCertain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective deta at the beginning of the course. Registration for the course will be con sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment o the course of the semester, the lecturer will put their registration for a sessment into effect. Students who meet all prerequisites will be admited to assessment at a later date, students will have to obtain the qualificatio for admission to assessment anew. Courses offered online by Virtuel Hochschule Bayern (vhb) in the field of mathematics are always incomporated into a module with an exercise. The respective modules can identified by the word virtuell (online) added in brackets. Registration the exercise must always be made via SB@Home at the beginning of course. This registration for the exercise was successfilly completed, the lecturer will put the registration for assessment into the exercise was successfilly completed, the lecturer will put the registration for assessment into the exercise was successfilly completed, the lecturer will put the registration for assessment into the set of will to seek admission to assessment.					a s- ctive details ll be con- nt. If stu- ssment over ition for as- ill be admit- ster. For as- alification by Virtuelle ays incor- ules can be gistration for inning of the a declaration successful- ment into ef-		
Conten	Contents						
Discuss	sion of	central topics on teach	 ing mathematics in a G	iymnasium, in partic	ular didactic analyse	es and possi-	
bilities	of imp	ementation in the clas	sroom.				
Intende	ed leari	ning outcomes					
The stu Gymna	dent is sium fr	able to discuss and ar om a didactical point o	alyse selected topics a f view.	and questions on tea	ching mathematics	at German	
Course	S (type, n	umber of weekly contact hours	s, language — if other than Ger	man)			
Ü (no ir	format	ion on SWS (weekly co	ntact hours) and cours	e language available	2)		
Methoo module is	l of ass creditab	e essment (type, scope, lang le for bonus)	uage — if other than German, e	examination offered — if no	t every semester, informati	on on whether	
web-ba course)	sed pr	oject assignments and	tests (length/expendit	ure of time to be ann	nounced at the begin	ning of the	
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Workload							
Teaching cycle							
Referred to in LPO I (examination regulations for teaching-degree programmes)							
LA Gymnasi	en Mathe	matics (2012)	JMU Würzburg data record Le	• generated 26-Aug-2024 • e ehramt Gymnasien Mathemat	exam. reg. tik - 2012	page 45 / 62	

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Module title Abbreviation								
Start-u	Start-up Tutorial Mathematics 1 (virtual course)			10-M-VHBBr-122-mo	01			
Module	coord	inator		Module offered by				
Dean of	fStudi	es Mathematik (Mathen	natics)	tics) Institute of Mathematics				
ECTS	Metho	od of grading	Only after succ. con	Only after succ. compl. of module(s)				
2	(not) s	successfully completed						
Duratio	n	Module level	Other prerequisites	Other prerequisites				
1 semesterundergraduateCertain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective det at the beginning of the course. Registration for the course will be cosidered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment the course of the semester, the lecturer will put their registration for sessment into effect. Students who meet all prerequisites will be ad ted to assessment in the current or in the subsequent semester. For sessment at a later date, students will have to obtain the qualificati for admission to assessment anew. Courses offered online by Virtue Hochschule Bayern (vhb) in the field of mathematics are always incoporated into a module with an exercise. The respective modules car identified by the word virtuell (online) added in brackets. Registratio the exercise must always be made via SB@Home at the beginning course. This registration for the exercise was success ly completed, the lecturer will put the registration for assessment in				o as- tive details Il be con- nt. If stu- ssment over tion for as- Il be admit- ter. For as- alification y Virtuelle ays incor- ules can be gistration for nning of the declaration successful- ment into ef-				
Conten	ts							
In-dept cal rigo	h discu ur and	ission of basic topics in proofs.	mathematics that are	well known from sch	nool, with a focus on	mathemati-		
Intende	ed leari	ning outcomes						
The stu the tea	dent ge ching d	ets acquainted with the legree study programme	basic working techniq	ues which are prere	quisites for the furth	er courses in		
Course	S (type, n	umber of weekly contact hours	, language — if other than Ger	man)				
Ü (no ir	format	tion on SWS (weekly co	ntact hours) and cours	e language available	2)			
Methoc module is	l of ass creditab	s essment (type, scope, langu le for bonus)	age — if other than German, o	examination offered — if no	t every semester, informati	on on whether		
web-ba course)	sed pr	oject assignments and t	ests (length/expendit	ure of time to be ann	ounced at the begin	ning of the		
Allocat	ion of p	olaces						
Additio	nal inf	ormation						
Workload								
Teaching cycle								
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)							
LA Gymnasi	ien Mathe	matics (2012)	JMU Würzburg data record Lu	• generated 26-Aug-2024 • e ehramt Gymnasien Mathemat	exam. reg. iik - 2012	page 47 / 62		

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	data record Lehramt Gymnasien Mathematik - 2012	

Module title					Abbreviation			
Exam T	Exam Tutorial Didactics of Mathematics (virtual course)				10-M-VHBEx-122-m	01		
Module	e coord	inator		Module offered by				
Dean of	fStudi	es Mathematik (Mather	natics)	tics) Institute of Mathematics				
ECTS	Metho	od of grading	Only after succ. con	Only after succ. compl. of module(s)				
2	(not) s	successfully completed						
Duratio	n	Module level	Other prerequisites					
1 semesterUndergraduateCertain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective deta at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment or the course of the semester, the lecturer will put their registration for a sessment into effect. Students who meet all prerequisites will be admited to assessment at a later date, students will have to obtain the qualification for admission to assessment at a later date, students will have to obtain the qualification for admission to assessment at a later date, students will have to obtain the qualification for admission to assessment anew. Courses offered online by Virtuell Hochschule Bayern (vhb) in the field of mathematics are always incor porated into a module with an exercise. The respective modules can lidentified by the word virtuell (online) added in brackets. Registration the exercise must always be made via SB@Home at the beginning of course. This registration for the exercise was successf ly completed, the lecturer will put the registration for assessment into				o as- ctive details ill be con- nt. If stu- ssment over ation for as- ill be admit- ster. For as- alification by Virtuelle ays incor- ules can be gistration for inning of the a declaration successful- ment into ef-				
Contents								
Revisio the Erst as basi	n of ba tes Sta c guide	sics (definitions of mat atsexamen für Lehramt elines for answering exa	hematical notions, for Gymnasium (first state m questions (with a sp	mulation and proving e examination for tea pecial focus on the s	g of theorems) in pre iching at a Gymnasiu tate examination in l	eparation for um) as well Bavaria).		
Intende	ed learı	ning outcomes						
The stu	dent le	arns about the structu	e of the state exams a	nd different methods	s for solving the exar	n problems.		
Course	S (type, n	umber of weekly contact hour	, language — if other than Ger	man)				
Ü (no ir	format	tion on SWS (weekly co	ntact hours) and cours	e language available	2)			
Methoo module is	d of ass creditab	essment (type, scope, lang le for bonus)	uage — if other than German, o	examination offered — if no	t every semester, informati	ion on whether		
web-ba course)	sed pr	oject assignments and	tests (length/expendit	ure of time to be ann	ounced at the begin	ining of the		
Allocat	ion of p	olaces						
Additio	nal inf	ormation						
Workload								
Teaching cycle								
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)							
LA Gymnasi	ien Mathe	matics (2012)	JMU Würzburg data record Lu	● generated 26-Aug-2024 ● e ehramt Gymnasien Mathemat	exam. reg. tik - 2012	page 49 / 62		

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Module title				Abbreviation		
Basics	in Arith	metics (virtual course))		10-M-VHBAri-122-m	01
Madula	coord	inator		Modulo offered by		
Dean of	Studie	nialui os Mathomatik (Mathor	matics)	Institute of Mathem	atics	
FCTS	Metho	ad of grading	Only after succ. com	ind of module(s)	latics	
2	(not) s	successfully completed				
Duratio	n	Module level	Other prerequisites			
1 semesterUndergraduateCertain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective d at the beginning of the course. Registration for the course will be d sidered a declaration of will to seek admission to assessment. If s dents have obtained the qualification for admission to assessment 			as- tive details ll be con- nt. If stu- sement over tion for as- til be admit- ster. For as- alification y Virtuelle ays incor- ules can be gistration for nning of the declaration successful- ment into ef-			
Conton			fect at the end of the	e course.		
Basic to	nics o	n teaching arithmetics	in school e g divisabi	lity theony prime pu	mbers set theory	
Intende	d lear	ning outcomes		inty theory, prime no	iniscis, set theory.	
The stup proofs.	dent le He/Sh	arns basic topics in the e is acquainted with the	e teaching of arithmetic e employment of new t	s and the related ma echnologies for teac	athematical backgro hing arithmetic in sc	unds and hool.
Courses	5 (type, n	umber of weekly contact hour	s, language — if other than Ger	man)		
Ü (no in	Iformat	ion on SWS (weekly co	ntact hours) and cours	e language available	e)	
Method module is	l of ass creditab	s essment (type, scope, lang le for bonus)	uage — if other than German, e	examination offered — if no	t every semester, informati	on on whether
web-ba course)	sed pro	oject assignments and	tests (length/expendite	ure of time to be ann	ounced at the begin	ning of the
Allocati	ion of p	olaces				
Additio	nal info	ormation				
Workle						
Teaching cycle						
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module appears in						
LA Gymnasi	en Mathe	matics (2012)	JMU Würzburg	• generated 26-Aug-2024 • e	exam. reg.	page 51 / 62
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Module ti	itle	Abbreviation				
Basics in	School Geometry (virtual co	ourse)		10-M-VHBGeo-122-1	m01	
Module c	oordinator		Module offered by			
Dean of S	tudies Mathematik (Mather	natics)	atics) Institute of Mathematics			
ECTS M	Nethod of grading	Only after succ. com	Only after succ. compl. of module(s)			
2 (r	not) successfully completed					
Duration	Module level	Other prerequisites				
1 semeste	er undergraduate	Certain prerequisites sessment. The lectu at the beginning of t sidered a declaratio dents have obtained the course of the set sessment into effect ted to assessment in sessment at a later of for admission to ass Hochschule Bayern porated into a modu identified by the wor the exercise must al course. This registra of will to seek admis ly completed, the lect	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment anew. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathematics are always incor- porated into a module with an exercise. The respective modules can be identified by the word virtuell (online) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise will be considered a declaration of will to seek admission to assessment. If the exercise was successful- by completed the lecturer will put the registration for accessful-			
Contonto						
Revision a ject-speci metry.	and consolidation of the fur ific and didactic courses (in	damental topics in ele particular teaching deg	mentary geometry th grees Grundschule, H	nat are prerequisites Hauptschule, Realsc	for the sub- hule) in geo-	
Intended	learning outcomes					
The stude tics.He/S	ent has basic knowledge of s he is acquainted with the er	school geometry, as rea nployment of new tech	quired for the study on nologies for teachin	of mathematics and g geometry in schoo	its didac- l.	
Courses (t	type, number of weekly contact hours	, language — if other than Ger	man)			
Ü (no info	ormation on SWS (weekly co	ntact hours) and cours	e language available	e)		
Method o module is cre	If assessment (type, scope, lang editable for bonus)	uage — if other than German, e	examination offered — if no	t every semester, informati	on on whether	
web-base course)	ed project assignments and	tests (length/expendit	ure of time to be ann	nounced at the begin	ning of the	
Allocation	n of places					
Additional information						
Workload						
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
LA Gymnasien	Mathematics (2012)	JMU Würzburg data record Le	● generated 26-Aug-2024 ● € ehramt Gymnasien Mathemat	exam. reg. tik - 2012	page 53 / 62	

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Module title				Abbreviation			
Stocha	stics in	Sekundarstufe I (virtu	al course)		10-M-VHBSto-122-n	101	
Module	e coord	inator		Module offered by			
Dean of	f Studi	es Mathematik (Mather	natics)	tics) Institute of Mathematics			
ECTS	Metho	od of grading	Only after succ. com	Only after succ. compl. of module(s)			
2	(not) s	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 semester undergraduate			Certain prerequisite sessment. The lectu at the beginning of t sidered a declaratio dents have obtained the course of the se sessment into effect ted to assessment in sessment at a later for admission to ass Hochschule Bayern porated into a modu identified by the wo the exercise must al course. This registra of will to seek admis ly completed, the le- fect at the end of the	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment anew. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathematics are always incor- porated into a module with an exercise. The respective modules can be identified by the word virtuell (online) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise will be considered a declaration of will to seek admission to assessment. If the exercise was successful- ly completed, the lecturer will put the registration for assessment into affect.			
Conten	ts						
Revisio fic and	n and o didacti	consolidation of the fun ic courses in stochastic	damental topics in sto s.	chastics that are pre	erequisites for the su	ıbject-speci-	
Intende	ed lear	ning outcomes					
The stu tics.He,	dent h /She is	as basic knowledge of s acquainted with the er	stochastics, as required nployment of new tech	d for the study of ma nologies for teachin	thematics and its di g stochastics in scho	dac- pol.	
Course	S (type, r	number of weekly contact hours	, language — if other than Ger	man)			
Ü (no ir	nformat	tion on SWS (weekly co	ntact hours) and cours	e language available	e)		
Methoo module is	d of ass creditab	sessment (type, scope, lang le for bonus)	uage — if other than German, e	examination offered — if no	t every semester, informati	on on whether	
web-ba course)	sed pr	oject assignments and	tests (length/expendit	ure of time to be ann	ounced at the begin	ning of the	
Allocat	ion of p	olaces					
Additional information							
Workload							
Teaching cycle							
Referred to in LPO I (examination regulations for teaching-degree programmes)							
LA Gymnasi	ien Mathe	matics (2012)	JMU Würzburg data record Le	• generated 26-Aug-2024 • e ehramt Gymnasien Mathemat	exam. reg. tik - 2012	page 55 / 62	

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Module title					Abbreviation		
Compu	ter and	Mathematics (virtual co	ourse)		10-M-VHBCom-122-	m01	
Module	e coord	inator		Module offered by			
Dean of	f Studi	es Mathematik (Mathem	atics)	tics) Institute of Mathematics			
ECTS	Metho	od of grading	Only after succ. com	Only after succ. compl. of module(s)			
2 (not) successfully completed							
Duratio	n	Module level	Other prerequisites				
1 semester undergraduate		Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment anew. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathematics are always incor- porated into a module with an exercise. The respective modules can be identified by the word virtuell (online) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise will be considered a declaration of will to seek admission to assessment. If the exercise was successful- ly completed, the lecturer will put the registration for assessment into ef-					
Conten	ts						
Discuss puter to	sion of ools.	possible ways to use co	mputers in teaching n	nathematics as well	as discussion of con	nmon com-	
Intende	ed lear	ning outcomes					
The stu tics, as	dent is well as	acquainted with basic s with the potential and	possibilities for the en limitations of compute	nployment of compu er tools.	ters in the teaching	of mathema-	
Course	S (type, r	number of weekly contact hours,	language — if other than Ger	man)			
Ü (no ir	nformat	tion on SWS (weekly cor	itact hours) and cours	e language available	2)		
Methoo module is	l of ass creditab	sessment (type, scope, langu le for bonus)	age — if other than German, e	examination offered — if no	t every semester, informati	on on whether	
web-ba course)	sed pr	oject assignments and t	ests (length/expendit	ure of time to be ann	ounced at the begin	ning of the	
Allocat	ion of p	olaces					
Additio	Additional information						
Workload							
Teaching cycle							
Referred to in LPO I (examination regulations for teaching-degree programmes)							
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Module	Module title Abbreviation					
Mathe	matics	in Class 10 (virtual cour	se)		10-M-VHBM10-122-	m01
Module	e coord	inator		Module offered by		
Dean o	of Studi	es Mathematik (Mathem	natics)	tics) Institute of Mathematics		
ECTS	Metho	od of grading	Only after succ. compl. of module(s)			
2	(not)	successfully completed		. <u>.</u>		
Duration Module level			Other prerequisites			
1 semester undergraduate			Certain prerequisite sessment. The lectu at the beginning of t sidered a declaratio dents have obtained the course of the se sessment into effect ted to assessment in sessment at a later for admission to ass Hochschule Bayern porated into a modu identified by the wo the exercise must al course. This registra of will to seek admis ly completed, the lef	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment anew. Courses offered online by Virtuelle Hochschule Bayern (vhb) in the field of mathematics are always incor- porated into a module with an exercise. The respective modules can be identified by the word virtuell (online) added in brackets. Registration for the exercise must always be made via SB@Home at the beginning of the course. This registration for the exercise will be considered a declaration of will to seek admission to assessment. If the exercise was successful- ly completed, the lecturer will put the registration for assessment into ef-		
Conten	its					
Basic t	opics o	n teaching mathematics	s in tenth grade in Hau	ptschule, Realschul	e and Gymnasium.	
Intend	ed lear	ning outcomes				
The stu schule of new	ident le , as we techno	earns basic topics in the ll as the related mathem logies for teaching mat	teaching of mathemat natical backgrounds ar nematics in tenth form	tics in tenth form at nd proofs. He/She is	German Mittelschule acquainted with the	e and Real- e employment
Course	S (type, r	number of weekly contact hours	, language — if other than Ger	man)		
Ü (no i	nforma	tion on SWS (weekly co	ntact hours) and cours	e language available	e)	
Metho module is	d of ass s creditab	Sessment (type, scope, langu le for bonus)	age — if other than German, e	examination offered — if no	ot every semester, informat	ion on whether
web-ba	ased pr)	oject assignments and t	ests (length/expendit	ure of time to be anr	nounced at the begin	ning of the
Allocat	ion of _l	olaces				
Additional information						
Workload						
reacning cycle						
Referred to in LPO L (examination regulations for teaching degree programmes)						
L						
LA Gymnas	ien Mathe	ematics (2012)	JMU Würzburg data record Le	• generated 26-Aug-2024 • e ehramt Gymnasien Mathema	exam. reg. tik - 2012	page 59 / 62

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Thesis

(10 ECTS credits)

Preparation of a written Hausarbeit (thesis) in accordance with the provisions of Section 29 LPO I (examination regulations for teaching-degree programmes) is a prerequisite for teaching degree students to be admitted to the Erste Staatsprüfung (First State Examination). In accordance with the provisions of Section 29 LPO I, students studying for a teaching degree 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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Module title					Abbreviation	
Thesis	in Matl	hematics (teaching degree	ee at German Gymnas	sium)	10-M-HMGY-092-m01	
Module	e coord	inator		Module offered by		
Dean of	fStudi	es Mathematik (Mathema	atics)	Institute of Mathem	atics	
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
10	nume	rical grade	Where applicable, s supervisor.	pecific modules/mo	dule components as specified by	
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Indeper tion wit	ndently h the s	<pre>researching and writing upervisor.</pre>	on a topic in mathem	natics or mathematic	s didactics selected in consulta-	
Intende	ed leari	ning outcomes				
The stu tained o work in	dent is during a suita	able to work independer his/her studies in the tea able form, incorporating a	ntly on a given mathe aching degree program aspects of the didacti	matical topic and ap mme. He/She can wi cs of mathematics.	oply the skills and methods ob- rite down the result of his/her	
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
no cour	rses as	signed				
Methoo module is	d of ass creditab	s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
written Langua gulatio	thesis ge of a ns for t	(approx. 250 to 300 hour ssessment: German, exc eaching degree program	rs total) eptions in accordance nes)	e with Section 29 Su	bsection 4 LPO I (examination re-	
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Additio	nal info	ormation on module dura	tion: 1 to 2 semester	5.		
Worklo	ad					
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
-						
Module	Module appears in					
First sta	ate exa	mination for the teaching	degree Gymnasium	Mathematics (2012)		
First sta	First state examination for the teaching degree Gymnasium Mathematics (2009)					