



Annex SFB

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

Responsible: Faculty of Mathematics and Computer Science Responsible: Institute of Mathematics Examination regulations version: 2015 Examination regulations version: 2015

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, $\mathbf{\ddot{U}}$ = 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 for the modules in this SFB:	Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not cre- ditable for bonus.										
Information on assessment procedures:	Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the me- thod of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.										
	Should a module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.										
	Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.										

In accordance with the general regulations governing the degree subject described in this module catalogue:

LASPO2015

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

05-Oct-2015 (2015-188)

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

Every module will be described using the following form:

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

	ne (54 ECTS cre												
Cumpulsory Cours													
10-M-ELZT-152-		Elementary Number Theory											
m01	ECTS 6	Duratio		ester	Method of grading numerical grade	Modul level	undergraduate						
	Courses		V (4) + Ü (2)										
			If announced of one candid date) and wr	written examination (approx. 60 to 90 minutes If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date) and written exercises (approx. 12 exercise sheets, approx. 3 exercises per sheet).									
	Referred to in	LPO I	§ 51 Nr. 3	§ 51 Nr. 3									
10-M-EL-	Elementary Geometry												
GE-152-m01	ECTS 6	Duratio	n 1 sem	ester	Method of grading numerical grade	Modul level	undergraduate						
	Courses		V (4) + Ü (2)										
			of one candio date) and wr	If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate) and written exercises (approx. 12 exercise sheets, approx. 3 exercises per sheet).									
	Referred to in	-	§ 51 Nr. 3	9 51 I Nr. 3									
10-M-ELST-152-	Elementary Stochastics												
m01	ECTS 5	Duratio		ester	Method of grading numerical grade	Modul level	undergraduate						
	Courses		V (3) + Ü (1)										
			<u> </u>	written examination (approx. 60 to 90 minutes If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date) and written exercises (approx. 12 exercise sheets, approx. 3 exercises per sheet).									
	Method of as	sessment	If announced of one candid	l by the lect date each (turer at the beginning of the course, the writte approx. 20 minutes) or an oral examination in	groups of 2 candidate	replaced by an oral examination s (approx. 15 minutes per candi-						
	Method of as Referred to in		If announced of one candid	l by the lect date each (turer at the beginning of the course, the writte approx. 20 minutes) or an oral examination in	groups of 2 candidate	replaced by an oral examination s (approx. 15 minutes per candi-						
10-M-GRLA-152-		LPO I	If announced of one candid date) and wr	l by the lect date each (turer at the beginning of the course, the writte approx. 20 minutes) or an oral examination in	groups of 2 candidate	replaced by an oral examination s (approx. 15 minutes per candi-						
-	Referred to in	LPO I	If announced of one candid date) and wr § 51 l Nr. 3	l by the lect date each (itten exerci	turer at the beginning of the course, the writte approx. 20 minutes) or an oral examination in	groups of 2 candidate	replaced by an oral examination s (approx. 15 minutes per candi-						
10-M-GRLA-152- m01	Referred to in Basic Linear	LPO I Analysis	If announced of one candid date) and wr § 51 l Nr. 3	l by the lect date each (itten exerci	turer at the beginning of the course, the writte approx. 20 minutes) or an oral examination in ses (approx. 12 exercise sheets, approx. 3 exe	groups of 2 candidate rcises per sheet).	s (approx. 15 minutes per candi-						
	Referred to in Basic Linear ECTS 9 Courses	LPO I Analysis	If announced of one candid date) and wr § 51 Nr. 3 n 1 seme V (4) + Ü (2) written exam If announced	l by the lect date each (itten exerci ester ination (ap l by the lect date each (turer at the beginning of the course, the writte approx. 20 minutes) or an oral examination in ses (approx. 12 exercise sheets, approx. 3 exe	groups of 2 candidate rcises per sheet). Modul level n examination may be	s (approx. 15 minutes per candi- undergraduate replaced by an oral examination						

LA Mittelschulen Mathematics (2015)	JMU Würzburg • generated 30-Mär-2024 • exam. reg. data record L7 105 - - H 2015	page 3 / 10

10-M-GRAN-152-	Basic A	Basic Analysis											
m01	ECTS	12	Duratio	n	2 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	S		V (4) ·	$V(4) + \ddot{U}(2) + V(2) + \ddot{U}(2)$								
				If ann of on date) credit	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). creditable for bonus								
	Referred to in LPO I			§ 51 l	§ 51 Nr. 1								
10-M-AN-		ic Geom			1	I							
GE-152-m01	ECTS 6 Duratio				1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course				+ Ü (2)	prox. 60 to 90 minutes							
	Referred to in LPO I			of on date)	e candidate each (a table for bonus	pprox. 20 minutes) o	r an oral examination in groups	of 2 candidate	replaced by an oral examination s (approx. 15 minutes per candi-				
10-M-GRDG-152-	Basic Differential Equations												
m01	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	S		V (3) + Ü (2)									
				If ann of on date) credit	written examination (approx. 60 to 90 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). creditable for bonus								
		ed to in I	-	§ 51		la /Mittalachula /Daal							
10-M-M3GM- R-152-m01	ECTS	1	Duratio		r	le/Mittelschule/Reals	(not) successfully completed	Modul level	undorgraduata				
	Course	5	Duration	Ü (4)	1 semester			modul level	undergraduate				
			essment		(approx (r minut	ac) or b) project (re to	Ac pages)						
		-				es) or b) project (10 to							
	Referred to in LPO I			§ 51 special branch of science without assignment									

Teaching (12 ECTS credits)												
Compulsory Course	Compulsory Courses (12 ECTS credits)											
10-M-DGMR1-152-	Didact	ics of Ma	athematic	:s - Ge	s - Geometry (German Mittelschule/Realschule)							
m01	ECTS	5	Duration	ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course				$(2) + \ddot{U}(2)$							
	Method of assessment Referred to in LPO I			lf ann of one date).	written examination (approx. 60 to 90 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). creditable for bonus							
				§ 51		·		11				
10-M-DGMR2-152-			i		· · · · · · · · · · · · · · · · · · ·	ra (German Mittelsch						
m01		7	Duration		2 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses				$V(2) + \ddot{U}(1) + V(2) + \ddot{U}(2)$							
	Method of assessment			a) oral examination of one candidate each (approx. 30 minutes) or b) oral examination in groups (groups of 2 candidates, approx. 15 minutes per candidate) or c) written examination (60 to 120 minutes)								
		ed to in L	PO I	§ 51 l	§ 51 Nr. 4							
Students studying f Praktikum) which re Subsection 1 No. 4 credits obtained are ching-degree progra	Paper (4 ECTS credits) Students studying for a teaching degree Mittelschule must complete a practical training in didactics and teaching methodology (studienbegleitendes fachdidaktisches Praktikum) which refers to one of the subjects they selected as vertieft studiertes Fach (subject studied with a focus on the scientific discipline) pursuant to Section 34 Subsection 1 No. 4 LPO I (examination regulations for teaching-degree programmes). The obligatory accompanying tutorial is offered by the respective subject. The ECTS credits obtained are counted in the subject Erziehungswissenschaften pursuant to Section 10 Subsection 3 LASPO (general academic and examination regulations for teaching-degree programms).											
	Practio	al Traini	ng in Cla	ssroor	n Teaching including	g Theory (German Mi						
m01	ECTS	4	Duration		1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Course				P (0) + S (2)							
	Metho	d of asse	essment	a) presentation (30 to 45 minutes) with position paper (1 to 2 pages) or b) term paper (10 to 15 pages) Contents and duration of placement as specified in Section 34 Subsection 1 Sentence 1 No. 4 LPO I (examination regulations for teaching-degree programmes); participation in mandatory teaching practice, completion of all set tasks as specified by placement school.								
	Referre	ed to in L	PO I	§ 34 I	1 Nr. 4							
	udents	must tak	e module	es wort	h a total of 15 ECTS of	credits in the area Fre			electives) (Section 9 LASPO (ge- may take any modules from the			

LA Mittelschulen Mathematics (2015)

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

Mathematics (Freier Bereich (gen	eral as v	well as s	ubject-sr	pecific	electives) subject	specific)					
10-M-DCMU-152-			Aathema								
m01	ECTS	3	Duratio	ı	1 semester	Method of grading (not) successfully completed Modul level	undergraduate				
	Course	S		V (2)							
	Method	d of asse	essment		oroject (10 to 15 pages) Assessment offered: Every two years, winter semester						
	Referred to in LPO I			§ 22	§ 22 Nr. 2 f § 22 Nr. 1 h § 22 Nr. 3 f)						
10-M-DMMS1-152-	Method	dology o	of Teachir	ng in N	athematics 1 (Germ	an Mittelschule)					
m01	ECTS	3	Duratio	า	1 semester	Method of grading (not) successfully completed Modul level	undergraduate				
	Courses			S (2)							
	Method of assessment				a) talk (approx. 45 minutes) or b) term paper (5 to 10 pages) or c) project (10 to 15 pages) Assessment offered: Every two years, winter semester						
	Referre	d to in L	.PO I	§ 22	l Nr. 1 h)						
10-M-DMMS2-152-	Methodology of Teaching in Mathematics 2 (German Mittelschule)										
m01	ECTS	3	Duratio		1 semester	Method of grading (not) successfully completed Modul level	undergraduate				
	Courses			S (2)							
	Method of assessment			a) talk (approx. 45 minutes) or b) term paper (5 to 10 pages) or c) project (10 to 15 pages) Assessment offered: Every two years, summer semester							
	Referre	d to in L	.PO I	§ 22 ll Nr. 1 h)							
10-M-DVMS1-152-	Advanced Didactics of Mathematics 1 (German Mittelschule)										
m01	ECTS	2	Duratio		1 semester	Method of grading (not) successfully completed Modul level	undergraduate				
	Course	-		S (2)							
	Method	d of asse	essment		a) talk (approx. 45 minutes) or b) term paper (5 to 10 pages) or c) project (10 to 15 pages) Assessment offered: Every two years, winter semester						
	Referre	d to in L	.PO I	§ 22	l Nr. 1 h)						
10-M-DVMS2-152-	Advanc	ed Dida:	ctics of N	lathen	natics 2 (German Mi	ittelschule)					
m01	ECTS	2	Duratio	1	1 semester	Method of grading (not) successfully completed Modul level	undergraduate				
	Course	S		S (2)							
	Method	d of asse	essment			es) or b) term paper (5 to 10 pages) or c) project (10 to 15 pages) ry two years, summer semester					
	Referre	d to in L	.PO I	§ 22	l Nr. 1 h)						

LA Mittelschulen Mathematics (2015)	JMU Würzburg • generated 30-Mär-2024 • exam. reg. data record L7 105 - - H 2015	page 6 / 10

10-M-DV-	E-Lea	rning and	Blended	Learn	ing in Mathematic	al Teaching (virtual Co	urse)				
HB-152-m01	ECTS	3	Duratio	n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Cours	es		Ü (2)					_		
						mostly Virtuelle Hochs	chule Bayern (vhb)				
	Metho	od of ass	essment		ct (web-based, 15 t	o 20 hours) ce a year, winter seme	ctor				
	Defer	red to in l	DO I		Il Nr. 1 h)	ce a year, winter seme	Ster				
	Refer	eu to mit	.PU1		II Nr. 2 f)						
					§ 22 II Nr. 3 f)						
10-M-VHBA-	Basic	s in Arith	metics (v	irtual	course)						
ri-152-m01	ECTS 2 Duration			n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses			Ü (2)	Ü (2)						
						mostly Virtuelle Hochs	chule Bayern (vhb)				
	Metho	od of ass	essment		project (web-based, 15 to 20 hours)						
	Deferr	red to in l			Assessment offered: Once a year, winter semester						
	Referr	eatomi	.PU1		II Nr. 2 f)						
					II Nr. 3 f)						
10-M-VHBGeo-152-	Basic	s in Scho	ol Geome	netry (virtual course)							
m01	ECTS 2 Duratio		n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Cours	es		Ü (2)							
				Course type: eLearning, mostly Virtuelle Hochschule Bayern (vhb)							
	Metho	od of ass	essment	project (web-based, 15 to 20 hours)							
	Deferm	red to in l			Assessment offered: Once a year, summer semester § 22 ll Nr. 1 h)						
	Referr	eatomi	.PU1		II Nr. 2 f)						
					§ 22 II Nr. 3 f)						
10-M-VH-	Stoch	astics in	Sekunda	rstufe	rstufe I (virtual course)						
BSto-152-m01	ECTS	2	Duratio	n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Cours	es		Ü (2)							
			_			mostly Virtuelle Hochs	chule Bayern (vhb)				
	Metho	od of ass	essment		ct (web-based, 15 t		-t - <i>u</i>				
	Defer			<u> </u>		ce a year, winter seme	ster				
	Referr	ed to in l	.PU I		Nr. 1 h) Nr. 2 f)						
					II Nr. 3 f)						

LA Mittelschulen Mathematics (2015) JMU Würzburg • generated 30-Mär-2024 • exam. reg. data record L7/105/-1/H/2015 page 7 / 10			
	LA Mittelschulen Mathematics (2015)	JMU Würzburg • generated 30-Mär-2024 • exam. reg. data record L7/105/-/-/H/2015	page 7 / 10

10-M-VHBM10-152-	Mathem	atics i	n grade 1	o (virtı	ual course)						
m01	ECTS	2	Duratio	n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses			Ü (2)		· · · · · · · · · · · · · · · · · · ·		•			
						nostly Virtuelle Hochs	chule Bayern (vhb)				
	Method	ofass	essment		ct (web-based, 15 to						
			<u> </u>			e a year, summer sem	lester				
	Referred	to in L	.PO I		Nr. 1 h) Nr. 2 f)						
					§ 22 II NI. 2 I) § 22 II Nr. 3 f)						
10-M-DGMS-152-	Didactic	s of El	ementary	School Mathematics for Teachers at German Mittelschule and Special Education							
m01	ECTS	2	Duration	n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses			S (2)							
	Method of assessment				a) talk (approx. 45 minutes) or b) term paper (5 to 10 pages) or c) project (10 to 15 pages)						
	Referred to in LPO I				Assessment offered: Every two years, winter semester						
	Referred	to in L	.PO I		Nr. 2 f Nr. 1 h						
10-M-GBM-152-	Basic No	otions	and Meth	-	Mathematical Reas	soning					
m01	ECTS 2 Duratio				1 semester		(not) successfully completed	Modul level	undergraduate		
	Courses			V (1) -	+ Ü (1)	5 5					
	Method	ofass	essment	project (10 to 15 pages)							
				Language of assessment: German and/or English							
	Addition	ial Info	rmation	Additional information on module duration: block taught prior to the beginning of the lecture period.							
	Referred	to in L	.PO I		§ 22 Nr. 1 h)						
				-	II Nr. 2 f)						
10-M-VHBDG-152-			eometry (v					1			
m01	L	2	Duration		1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses			Ü (2)	so types of earning r	nostly Virtuelle Hochs	chulo Povorn (uhb)				
	Method	oface			,,,	,			_		
	Method	01 855	essment	project (web-based, 15 to 20 hours) Assessment offered: Once a year, summer semester							
	Referred	to in L	PO I		II Nr. 1 h)				_		
				§ 22	II Nr. 2 f)						
				§ 22	ll Nr. 3 f)						

10-M-VHBDA-152-	Didactics of A	gebra (viı							
m01	ECTS 2	Duratio	n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate	
	Courses	_	Ü (2)					_	
				<u>, , , , , , , , , , , , , , , , , , , </u>	nostly Virtuelle Hochs	chule Bayern (vhb)			
	Method of ass	essment		ct (web-based, 15 to		stor			
	Referred to in			Assessment offered: Once a year, winter semester § 22 ll Nr. 1 h),§ 22 ll Nr. 2 f)					
	Referred to III	LPUT		§ 22 II NI. 1 II),§ 22 II NI. 2 I) § 22 II Nr. 3 f)					
10-M-VH-	Exam Tutorial	Didactics	of Mathematics (virtual course)						
BEx-152-m01	ECTS 2	Duratio	n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate	
	Courses		Ü (2) Cours	Ü (2) Course type: eLearning, mostly Virtuelle Hochschule Bayern (vhb)					
	Method of ass	essment		project (web-based, 15 to 20 hours) Assessment offered: Once a year, winter semester					
	Referred to in	LPO I	§ 22	§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)					
	Mathematics :	Wirtual	-						
10-M-VHBMa1-152- m01		· ·		1		(not) an actually completed		un devene duete	
	ECTS 2 Duration		n Ü (2)	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate	
	Courses		Course type: eLearning, mostly Virtuelle Hochschule Bayern (vhb)						
	Method of ass	essment	project (web-based, 15 to 20 hours) Assessment offered: Every two years, winter semester						
	Referred to in	LPO I	§ 22 Nr. 1 h)						
			§ 22 Nr. 2 f) § 22 Nr. 3 f)						
10-M-	Mathematics :	- (virtual d		-					
VHBMa2-152-mo1	ECTS 2	Duratio		1 semester	Mothod of grading	(not) successfully completed	Modul level	undergraduate	
	Courses	Duration	Ü (2)	1 Semester	method of glading		Modulievei	undergraduate	
	courses			e type: eLearning, n	nostly Virtuelle Hochs	chule Bayern (vhb)			
	Method of ass	essment	project (web-based, 15 to 20 hours) Assessment offered: Every two years, summer semester						
	Referred to in LPO I		§ 22	Nr. 1 h) Nr. 2 f) Nr. 3 f)					

LA Mittelschulen Mathematics (2015) JMU Würzburg • generated 30-Mär-2024 • exam. reg. data record L7/105/- - H/2015 page 9 / 10			
	LA Mittelschulen Mathematics (2015)	JMU Würzburg • generated 30-Mär-2024 • exam. reg. data record L7 105 - - H 2015	page 9 / 10

10-M-SCH-152-m01	School	Mather	natics fro	m a Hi	gher Perspective						
	ECTS 5 Duration			n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Course	S	_	V (2) -	V (2) + Ü (2)						
	Methoo	d of asse	essment	a) talk (approx. 45 minutes) or b) term paper (10 to 15 pages) or c) project (15 to 25 hours) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							
				§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)							
Paper (10 ECTS credits)											

Preparation of a written Hausarbeit (thesis) in accordance with the provisions of Section 29 LPO I (examination regulations for teaching-degree programmes) is a prerequisite for teaching degree students to be admitted to the Erste Staatsprüfung (First State Examination). In accordance with the provisions of Section 29 LPO I, students studying for a teaching degree Mittelschule may write this thesis in the subject Didaktik einer Fächergruppe der Mittelschule (Didactics of a Group of Subjects of Mittelschule), in the subject they selected as Unterrichtsfach (subject studied with a focus on the scientific discipline) or in the subject Erziehungswissenschaften (Educational Science). Pursuant to Section 29 Subsection 1 Sentence 2 LPO I, students may also choose to write an interdisciplinary thesis.

10-M-HMMS-152- Thesis in Mathematics (German Mittelschule)

	10 11 11111110 1 12										
mo1 ECTS 10 Duration 2 semester Method of grading numerical grade Modul level u							undergraduate				
		Course	s		No courses assigned to module						
					Hausarbeit (thesis) pursuant to Section 29 LPO I (examination regulations for teaching-degree programmes) (250 to 300 hours) Language of assessment: German; exceptions pursuant to Section 29 Subsection 4 LPO I (examination regulations for tea- ching-degree programmes)						
Referred to in LPO I § 29											