



Annex SFB

Studienfachbeschreibung (subject description, SFB) for the subject Mathematical Physics as a Bachelor's with 1 major with the degree "Bachelor of Science" (180 ECTS credits)

Responsible: Faculty of Mathematics and Computer Science Responsible: Institute of Mathematics Responsible: Faculty of Physics and Astronomy Examination regulations version: 2016 Examination regulations version: 2016 Examination regulations version: 2016

Abbreviations used:	ourse types: E = field trip, K = colloquium, O = conversatorium, P = placement/lab course, R = project, S = seminar, T = tutorial, Ü = exercise, 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:

ASPO2015

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

27-Jul-2016 (2016-91)

12-Jun-2024 (2024-74)

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	Dura	ation	(in semesters)	Method of grading	Module level					
	Courses		To be spe	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	sessment									
	Only after su completion c		if applica	if applicable							
	Other prereq	uisites	if applica	if applicable							
	Participants on of places		i- if applica	ble							
	Additional in	formation	if applica	ble							
	Referred to in	n LPO I	if applica	ble (examination	regulations for teaching	degree programmes)					

Compulsory Course	mpulsory Courses (110 ECTS credits)											
Subfield Analysis (eld Analysis (27 ECTS credits)											
10-M-ANA1-152-	Analysis 1											
m01	ECTS 8	Duratio	n	1 semester	Method of grading (not) successfully comp	oleted Modul level	undergraduate					
	Courses		V (4) -	+ Ü (2)								
	Method of asse	essment		written examination (approx. 90 to 180 minutes) and written exercises (approx. 12 exercise sheets with approx. 4 exercises								
				each) Language of assessment: German and/or English								
10-M-ANP-Ü-152-	Overview Analy	vsis for N	_	-								
m01	ECTS 12	Duratio		1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Courses	<u>I</u>	V (4) -	⊦ ⊦Ü(2)		l.						
	Method of asse	essment			andidate each (20 to 40 minutes)							
					erence to the contents of modules 10-M-ANA- : German and/or English	1 and 10-M-ANP-U.						
10-M-VAN-152-m01	Advanced Anal	vsis	Langu	lage of assessment.								
	ECTS 7	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Courses	2 41 41 0	V (4) -									
	Method of assessment		a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus									
Subfield Linear Alg	ebra (20 ECTS c	redits)										
10-M-LNA1-152-	Linear Algebra	1										
m01	ECTS 8	Duratio	n	1 semester	Method of grading (not) successfully comp	oleted Modul level	undergraduate					
	Courses			+ Ü (2)								
	Method of asse		each) Langı	written examination (approx. 90 to 180 minutes) and written exercises (approx. 12 exercise sheets with approx. 4 exercises each) Language of assessment: German and/or English								
10-M-LNP-Ü-152-				athematical Physic								
m01	ECTS 12	Duratio		1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Courses		V (4) -									
	Method of asse	essment	Asses	oral examination of one candidate each (20 to 40 minutes) Assessment will have reference to the contents of modules 10-M-LNA-1 and 10-M-LNP-Ü. Language of assessment: German and/or English								

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 3 / 24

Subfield Classical	l Physics (16 ECTS credits)											
11-E-M-152-m01	Classical Physics 1 (Me	chanics)										
	ECTS 8 Duratio	n 1 semester Method of grading numerical grade Modul level undergraduate										
	Courses	V (4) + Ü (2)										
		Module taught in: Ü: German or English										
	Method of assessment	written examination (approx. 120 minutes) Language of assessment: German and/or English										
	other prerequisites	Admission prerequisite to assessment: completion of exercises (approx. 13 exercise sheets per semester). Students who successfully completed approx. 50% of exercises will qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the semester.										
	Additional Information	Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student's registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment was not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.										
	Referred to in LPO I	§ 53 Nr. 1 a) § 77 Nr. 1 a)										
11-E-E-152-m01	Classical Physics 2 (Heat and Electromagnetism)											
	ECTS 8 Duratio	1 semester Method of grading numerical grade Modul level undergraduate										
	Courses	V (4) + Ü (2) Module taught in: Ü: German or English										
	Method of assessment	written examination (approx. 120 minutes) Language of assessment: German and/or English										
	other prerequisites	Admission prerequisite to assessment: completion of exercises (approx. 13 exercise sheets per semester). Students who successfully completed approx. 50% of exercises will qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the semester.										
	Additional Information											
	Referred to in LPO I	§ 53 Nr. 1 a) § 77 Nr. 1 a)										

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 4 / 24

Subfield Theoretica	Theoretical Mechanics and Quantum Mechanics (16 ECTS credits)									
11-T-MV-162-m01	Theoretical Me	chanics								
	ECTS 5	Duratio		Method of grading	numerical grade	Modul level	undergraduate			
	Courses		V (4)							
	Method of asse	essment	written examination (app		• •					
	Quantum Mech		Language of assessment	anguage of assessment: German and/or English						
11-T-QV-162-m01		1	n d comoctor	Mathad of grading	numerical area	Modul level	undergreduete			
	ECTS 5 Courses	Duratio	n 1 semester	Method of grading	numencal grade	Modul level	undergraduate			
	Method of asse	occmont	written examination (app	vrox 120 minutos)						
	Method of asse	essment	Language of assessment		ish					
11-T-TMQ-162-m01	Theoretical Me	chanics a	and Quantum Mechanics -							
	ECTS 6	Duratio	n 2 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Courses	<u>,</u>	Ü (2) + Ü (2)	,						
			Module taught in: Germa							
	Method of asse	essment	Students must complete			C (1) .				
			To pass the assessment, students must successfully complete approx. 50% of these exercises. The lecturer will inform stu- dents about the respective details at the beginning of the semester.							
			Language of assessment: German and/or English							
Subfield Statistical	Physics and Ele	ectrodyna	amics I (6 ECTS credits)							
11-T-SE-152-m01	Statistical Phy	sics and	Electrodynamics							
	ECTS 6	Duratio	n 2 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses		V (4) + V (4)							
	Method of asse	essment	oral examination of one candidate each (approx. 30 minutes)							
			Language of assessment: German and/or English							
			amics II (10 ECTS credits)							
11-T-SA-152-m01	Statistical Phy	1				-				
	ECTS 5	Duratio		Method of grading	numerical grade	Modul level	undergraduate			
	Courses		Ü(2) Madula tauaht in Ü. Cam	www.ew.Eweliek						
	Method of asse		Module taught in: Ü: Ger							
	Method of asse	essment	written examination (app Language of assessment		ish					
11-T-EA-152-m01	Electrodynami	cs - Exerc								
, , , , , , , , , , , , , , , , , , ,	ECTS 5	Duratio		Method of grading	numerical grade	Modul level	undergraduate			
	Courses	1	Ü (2)		0					
			Module taught in: Ü: Ger	-						
	Method of asse	essment	written examination (app		• •					
			Language of assessment	: German and/or Engl						
Bachelor's with 1 major M	lathematical Physics (2	2016)			JMU Würzburg • generated 02-Aug-20	025 • exam. reg. data i	record 82 b55 - - H 2016 page 5 / 24			

Subfield Laborator	y Course	v Course Physics (15 ECTS credits)											
11-P-PA-152-m01	Laborat	tory Co	urse Phys	ics A (Mechanics, Heat, Ele	ectromagnetism)							
	ECTS	3	Duratio	n	1 semester Method of grading (not) successfully completed Modul level undergraduate								
	Courses	S		P (2)					1				
	Method	l of ass	essment	Prepa pleted comp sics-r	practical assignment with talk (approx. 30 minutes) Preparing, performing and evaluating (record of readings or lab report) the experiments will be considered successfully com- pleted if a Testat (exam) is passed. Exactly one experiment that was not successfully completed can be repeated once. After completion of all experiments, talk (with discussion; approx. 30 minutes) to test the candidate's understanding of the phy- sics-related contents of the module. Talks that were not successfully completed can be repeated once. Both components of the assessment have to be successfully completed.								
11-P-FR1-152-m01	Data an	ıd Error	Analysis										
	ECTS	2	Duratio	n	1 semester	Method of grading	(not) successfully com	pleted	Modul level	undergraduate			
	Courses	5	-	V (1) + Modu	- Ü (1) le taught in: Ü: Gern	han or English							
	Method	l of ass	essment		written examination (approx. 120 minutes) Language of assessment: German and/or English								
	other prerequisites			Admission prerequisite to assessment: completion of exercises (approx. 13 exercise sheets per semester). Students who successfully completed approx. 50% of exercises will qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the semester.									
	Additional Information			Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student's registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment was not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.									
	Referred	d to in	LPO I	§ 53 Nr. 1 c) § 77 Nr. 1 d)									
11-P-MPB-152-m01	Laborat	tory Co	urse Phys	sics B for Students of Mathematical Physics									
	ECTS	4	Duratio	n		Method of grading	(not) successfully com	pleted	Modul level	undergraduate			
	Courses	S	·	P (2)	·	•	· · · · · · · · · · · · · · · · · · ·						
	Method of assessment			Prepa pleted comp sics-r	ring, performing and d if a Testat (exam) is letion of all experim elated contents of th	s passed. Exactly on ents, talk (with discu	of readings or lab report e experiment that was n ission; approx. 30 minu t were not successfully	not succ ites) to t	essfully compl est the candid	be considered successfully com- eted can be repeated once. After ate's understanding of the phy- eated once. Both components of			
	other pi	rerequi	sites	Stude	nts are highly recom	nmended to complet	e modules 11-P-PA and	11-P-FR1	prior to compl	leting module 11-P-MPB.			

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 6 / 24

11-P-MPC-152-m01	Labo	Laboratory Course Physics C for Students of Mathematical Physics									
	ECTS 4 Duratio			1		Method of grading	(not) successfully completed	Modul level	undergraduate		
	Cour	ses		P (2)							
	Meth	nod of as	sessment	practi	cal assignment with	n talk (approx. 30 mir	utes)				
				Prepa	ring, performing and	d evaluating (record o	of readings or lab report) the e	xperiments will	be considered successfully com-		
					ted if a Testat (exam) is passed. Exactly one experiment that was not successfully completed can be repeated once. After mpletion of all experiments, talk (with discussion; approx. 30 minutes) to test the candidate's understanding of the phy-						
									ated once. Both components of		
						be successfully comp					
	othe	r prerequ	lisites	Stude	nts are highly recon	nmended to complet	e module 11-P-MPB prior to co	mpleting module	e 11-P-MPC.		
11-P-FR2-152-m01	Adva	inced and	d Computa	tional	Data Analysis						
	ECTS	2	Duratio		1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Cour	ses		V (1) +	Ü (1)						
	Meth	nod of as	sessment				o% of approx. 10 exercise she	ets)			
						e a year, summer ser					
		r prerequ			<u> </u>	nmended to complet	e module 11-P-FR1 prior to com	pleting module	11-P-FR2.		
Compulsory Electiv	es Ma	athemati	cs (22 ECT	5 credi	ts)						
Subgroup Basics of	f Math	nematica	l Methods	(9 ECT	S credits)						
10-M-DGE-152-m01	Intro	duction	to Differen	tial Ge	ometry						
	ECTS	9	Duratio		1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Cour	ses		V (4) -	- Ü (2)						
	Meth	nod of as	sessment				utes, usually chosen) or				
						e candidate each (15					
						oups (groups of 2, 10 : German and/or Eng	to 15 minutes per candidate)				
							the course is offered and in th	e subsequent se	emester		
					able for bonus						
10-M-DGL-152-m01	Ordi	nary Diffe	erential Eq	uation	5						
	ECTS	9	Duratio	า	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Cour	ses		V (4) -	- Ü (2)						
	Meth	nod of as	sessment	a) wri	ten examination (a	pprox. 90 to 180 min	utes, usually chosen) or				
						e candidate each (15					
							to 15 minutes per candidate)				
					age of assessment: able for bonus	: German and/or Eng	ISN				

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 7 / 24
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10-M-FTH-152-m01	Introdu	ction to	o Complex	Analy	Analysis						
	ECTS	9	Duratio	ı	1 semester	Method of grading	(not) successfully complete	d Modul level	undergraduate		
	Courses	5		V (4) -	+ Ü (2)						
	Method	l of ass	essment				utes, usually chosen) or				
				b) oral examination of one candidate each (15 to 30 minutes) or							
					c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English						
					creditable for bonus						
10-M-GAN-152-	Geomet	t ric An a	lysis								
m01	ECTS	9	Duration	ı	1 semester	Method of grading	(not) successfully complete	d Modul level	undergraduate		
	Courses	5		V (4) -	+ Ü (2)						
	Method	l of ass	essment				utes, usually chosen) or				
						ne candidate each (15					
					c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English						
				creditable for bonus							
	Referred	Referred to in LPO I			§ 22 II Nr. 3 f)						
10-M-FAN-152-m01	Introdu	Introduction to Functional Analysis									
	ECTS	9	Duration		1 semester	Method of grading	(not) successfully complete	d Modul level	undergraduate		
	Courses	5		V (4) + Ü (2)							
	Method of assessment										
					b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)						
						t: German and/or Engl					
				credit	creditable for bonus						
	Referred				l Nr. 3 f)						
10-M-PAR-152-m01		ction to	o Partial D	oifferer	tial Equations						
	ECTS	9	Duration		1 semester	Method of grading	(not) successfully complete	d Modul level	undergraduate		
	Courses				+ Ü (2)						
	Method	l of ass	essment				utes, usually chosen) or				
						ne candidate each (15	to 30 minutes) or to 15 minutes per candidate)				
						t: German and/or Engl					
				Asses	sment offered: In t		the course is offered and in t	he subsequent s	emester		
				credit	able for bonus						

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 8 / 24

Subfield Overview	Mathem	atical M	Nethods (:	13 ECT	S credits)					
10-M-DGGD-	Overvi	ew Diffe	rential Ge	eometr	ometry and Ordinary Differential Equations for Mathematical Physics					
PÜ-152-m01	ECTS 13 Duration			ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Course	:S		V (4) ·	+ Ü (2)			[°]		
	Metho	d of ass	essment	oral e	xamination of one ca	andidate each (20 to	40 minutes)			
				Asses	Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be selected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathematical Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics).					
					Language of assessment: German and/or English					
10-M-FTDG-PÜ-152-	Overvi	ew Com	plex Anal	ysis ar	nd Differential Geom	etry for Mathematica	l Physics			
m01	ECTS	13	Duratio	ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Course	es	_	V (4) ·	+ Ü (2)					
	Metho	d of ass	essment			andidate each (20 to				
					Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be					
					elected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathemati- al Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics).					
						German and/or Engli				
10-M-FTGD-PÜ-152-	Overvi	Overview Complex Analysis and Ordinary Differential Equations for Mathematical Physics								
m01	ECTS 13 Duratio			ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Course	es		V (4) ·	+ Ü (2)					
	Metho	d of ass	essment	oral examination of one candidate each (20 to 40 minutes)						
					Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be					
					selected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathemati- cal Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics).					
					Language of assessment: German and/or English					
10-M-GADG-	Overvi	ew Geor	netric Ana	alysis	and Differential Geor	metry for Mathematic	al Physics			
PÜ-152-m01	ECTS	13	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Course	!S		V (4) ·	+ Ü (2)			•		
	Method of assessment									
									examiner. Each topic may only be	
							he sub-field Gesamtuberblick athematik (Supplementary Top		e Methoden (Overview Mathemati-	
						German and/or Engli				

10-M-GAGD-	Overvie	w Geor	netric Ana	alysis	and Ordinary Diffe	rential Equations for I	Mathematical Physics	5		
PÜ-152-m01	ECTS 13 Duration			1	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Courses	5		V (4) ·	+ Ü (2)					
	Method	ofass	essment			candidate each (20 te				
				Asses	ssment will have re	eference to two topics	in pure mathematics	as agreed upon with the	examiner. Each topic may only be	
					selected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathemati- cal Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics).					
	Language of assessment: German and/or English									
10-M-GAFT-PÜ-152-	Overvie	w Geor	netric Ana	alysis	and Complex Analy	ysis for Mathematical	Physics			
m01	ECTS	13	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Courses	5		V (4) ·	+ Ü (2)			°		
	Method	ofass	essment			candidate each (20 te				
									examiner. Each topic may only be e Methoden (Overview Mathemati-	
								entary Topics in Mathem		
						it: German and/or Eng				
10-M-FADG-	Overvie	w Func	tional An	alysis	Ilysis and Differential Geometry for Mathematical Physics					
PÜ-152-m01	ECTS 13 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		V (4) ·	+ Ü (2)						
	Method of assessment					candidate each (20 te			_	
			Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be selected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathemati-							
				cal Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics).						
			Language of assessment: German and/or English							
10-M-FAGD-	Overvie	w Func	tional An	alysis	and Ordinary Diffe	rential Equations for	Mathematical Physics	5		
PÜ-152-m01	ECTS	13	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Courses	5		V (4) ·	+ Ü (2)					
	Method	ofass	essment	oral examination of one candidate each (20 to 40 minutes)						
				Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be						
					selected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathemati- cal Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics).					
				Langu	lage of assessmer	it: German and/or Eng	lish			
10-M-FAFT-PÜ-152-	Overvie	w Func	tional An	alysis	and Complex Anal	ysis for Mathematical	Physics			
m01	ECTS	13	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Courses	5	_	V (4) ·	+ Ü (2)					
	Method	ofass	essment			candidate each (20 te				
									examiner. Each topic may only be	
								entary Topics in Mathem	e Methoden (Overview Mathemati- atics).	
						it: German and/or Eng		entary ropies in mathem		

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 10 / 24

10-M-FA-	Overvie	Overview Functional Analysis and Geometric Analysis for Mathematical Physics										
GA-PÜ-152-m01	ECTS	13	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	s		V (4)	+ Ü (2)							
	Method	d of ass	essment	Asse selec cal N	ssment will have re ted as the subject lethods) or in modu	of one examination in	in pure mathematics as ag the sub-field Gesamtüber lathematik (Supplementar	blick Mathematische	examiner. Each topic may only be e Methoden (Overview Mathemati- atics).			
10-M-DG-	Overvie	rview Differential Geometry and Partial Differential Equations for Mathematical Physics										
PA-PÜ-152-m01	ECTS	13	Duratio	ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		V (4)	+ Ü (2)	·		•				
		Nethod of assessment selected as the subject of one candidate each (20 to 40 minutes) Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be selected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathematical Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics). Language of assessment: German and/or English										
10-M-GD-					, ,		erential Equations for Mathematical Physics					
PA-PÜ-152-m01	ECTS	13	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	-			+ Ü (2)							
	Method of assessmentoral examination of one candidate each (20 to 40 minutes)Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic mathematics as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview N cal Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics). Language of assessment: German and/or English							e Methoden (Overview Mathemati-				
10-M-FTPA-PÜ-152-	Overvie	ew Com	plex Anal	ysis a	nd Partial Different	ial Equations for Mat	nematical Physics					
m01	ECTS	13	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		V (4)	+ Ü (2)			•	*			
	Method	d of ass	essment	Asse selec cal N	ssment will have re ited as the subject (lethods) or in modu	of one examination in	in pure mathematics as ag the sub-field Gesamtüber lathematik (Supplementar	blick Mathematische	examiner. Each topic may only be e Methoden (Overview Mathemati- atics).			
10-M-GA-	Overvie	ew Geoi	metric Ana	alysis	and Partial Differe	ntial Equations for Ma	thematical Physics					
PA-PÜ-152-m01	ECTS	13	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course				+ Ü (2)							
	Method	d of ass	essment	Asse selec cal N	ssment will have re ited as the subject (lethods) or in modu	of one examination in	in pure mathematics as ag the sub-field Gesamtüber lathematik (Supplementar	blick Mathematische	examiner. Each topic may only be e Methoden (Overview Mathemati- atics).			
Bachelor's with 1 major M	Nathematica	al Physics ((2016)				JMU Würzburg • generated 02	-Aug-2025 • exam. reg. data	record 82 b55 - - H 2016 page 11 / 24			

Bachelor's with a major Mathematical Diverse (2016)			
	Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 11 / 24

10-M-FAPA-PÜ-152-	Overvi	Overview Functional Analysis and Partial Differential Equations for Mathematical Physics								
m01	ECTS	13	Duratio	า	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Course	S		V (4) -		· · ·				
	Metho	d of ass	essment	oral examination of one candidate each (20 to 40 minutes)						
				Asses	Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be selected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathemati- cal Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics).					
		Language of assessment: German and/or English								
Mathematical Phys	natical Physics (18 ECTS credits)									
Module Group Sup	plement	ary Top	ics in Mat	hemat	ics					
10-M-NUM1P-152-	Numer	ical Mat	hematics	1 for N	Aathematical Physic	cs				
m01	ECTS	10	Duration	า	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Course	S		V (4) -	+ Ü (2)	·				
	Method	d of ass	essment		a) written examination (approx. 90 to 180 minutes, usually chosen) or					
)) oral examination of one candidate each (15 to 30 minutes) or					
		c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English								
					able for bonus					
10-M-NUM2P-152-	Numer	ical Mat	hematics	2 for Mathematical Physics						
m01	ECTS	10	Duratio	า	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Course	S		V (4) + Ü (2)						
	Method of assessment			a) written examination (approx. 90 to 180 minutes, usually chosen) or						
					b) oral examination of one candidate each (15 to 30 minutes) or					
					c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English					
				credit	creditable for bonus					
10-M-ST01P-152-	Stocha	stics 1 f	or Mathe	matica	l Physics					
m01	ECTS	10	Duratio	า	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Course	S		V (4) -		·				
	Metho	d of ass	essment			pprox. 90 to 180 minutes, usually chosen) or				
						e candidate each (15 to 30 minutes) or				
						oups (groups of 2, 10 to 15 minutes per candidate : German and/or English)			
					able for bonus					

10-M-STO2P-152-	Stoc	nastics 2	for Mathe	ematica	matical Physics						
m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Cours	ses		V (4)	+ Ü (2)				,		
			essment	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus							
10-M-ALGP-152-	Intro	duction t	o Algebra	for Ma	thematical Physic	:S					
m01	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Cours	ses		V (4)	/ (4) + Ü (2)						
	Method of assessment			a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus							
10-M-DIMP-152-	Intro	duction t	o Discrete	Math	ematics for Mathe	matical Physics					
m01	ECTS 10 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses			V (4)	+ Ü (2)						
	Method of assessment			a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus							
10-M-PGEP-152-	Intro	duction t	o Projecti	ve Geo	metry for Mathem	atical Physics					
m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Cours	ses		V (4)	+ Ü (2)						
	Method of assessment			a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus							

10-M-ZTHP-152-	Introducti	on to Number	Theor	y for Mathematical	Physics				
m01	ECTS 10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Courses	;	V (4)	+ Ü (2)	· · ·		-		
	Method of	assessment	b) ora c) ora Langu	itten examination (a al examination of on al examination in gro uage of assessment table for bonus					
10-M-OR-	Operation	s Research fo	r Math	ematical Physics					
SP-152-m01	ECTS 10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Courses		V (4) ·	+ Ü (2)					
			b) ora c) ora Langu Asses credit	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) _anguage of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M-DGEP-152-	Introducti	Introduction to Differential Geometry for Mathematical Physics							
m01	ECTS 10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Courses		V (4)	+ Ü (2)					
			a) oral examination of one candidate each (15 to 30 minutes) or b) oral examination in groups of 2 candidates (10 to 15 minutes each) Assessment will have reference to a topic in pure mathematics as agreed upon with the examiner. Each topic may only be se- lected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathematical Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics). Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M-DGLP-152-	Ordinary [Differential Eq	uation	s for Mathematical	Physics				
m01	ECTS 10	Duratio		1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Courses		<u> </u>	+ Ü (2)					
	Method of	f assessment	a) oral examination of one candidate each (15 to 30 minutes) or b) oral examination in groups of 2 candidates (10 to 15 minutes each) Assessment will have reference to a topic in pure mathematics as agreed upon with the examiner. Each topic may only be se- lected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathematical Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics). Language of assessment: German and/or English creditable for bonus						

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 14 / 24

10-M-FT-	Introduction to Complex Analysis for Mathematical Physics									
HP-152-m01	ECTS 10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		V (4) +	- Ü (2)						
	Method of a	assessment			ne candidate each (15					
						(10 to 15 minutes each)				
			Assessment will have reference to a topic in pure mathematics as agreed upon with the examiner. Each topic may only be se- lected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathematical							
				Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics). Language of assessment: German and/or English						
			Langu							
				able for bonus						
10-M-GANP-152-				natical Physics		1				
m01	ECTS 10	Duratio		1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		V (4) +							
	Method of a	assessment	a) ora	l examination of or	ne candidate each (15	to 30 minutes) or	N N			
						(10 to 15 minutes each)		niner. Each topic may only be se-		
								ethoden (Overview Mathematical		
			Metho	ods) or in module g	group Ergänzung Math	ematik (Supplementary	y Topics in Mathematics			
				Language of assessment: German and/or English creditable for bonus						
10-M-FANP-152- m01		Introduction to Functional Analysis for Mathematical PhysicsECTS10Duration1 semesterMethod of gradingnumerical gradeModul levelundergraduate								
11101	ECTS 10	Duratio		1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses	,	V (4) +							
	Method of a	assessment			ne candidate each (15)			
			b) oral examination in groups of 2 candidates (10 to 15 minutes each) Assessment will have reference to a topic in pure mathematics as agreed upon with the examiner. Each topic may only be se-							
			lected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathematical							
			Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics).							
			Langu	Language of assessment: German and/or English creditable for bonus						
	Introductio	n to Dartial I			Mathematical Physics					
10-M-PARP-152- m01	ECTS 10	Duratio		1 semester	Method of grading		Modul level	undergraduate		
	Courses	Duratio	V (4) +		method of grading	numerical glade	modulievel	undergraduate		
		accoccmont			ne candidate each (15	to 20 minutes) or				
	Method of a	1556551110111				(10 to 15 minutes each))			
			Asses	sment will have re	ference to a topic in p	ure mathematics as ag	reed upon with the exan	niner. Each topic may only be se-		
				lected as the subject of one examination in the sub-field Gesamtüberblick Mathematische Methoden (Overview Mathematical Methods) or in module group Ergänzung Mathematik (Supplementary Topics in Mathematics).						
					group Erganzung Math t: German and/or Eng		y lopics in Mathematics).		
							nd in the subsequent se	mester		
				able for bonus	semester in willen					

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 15 / 24

10-M-MWR-152-	Modeling and Computational Science												
m01	ECTS	8	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	es			+ Ü (2) Ile taught in: Gern	nan and/or English	·						
	Metho	d of ass	sessment	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus									
Module Group Exp	eriment	al Physi	ics										
11-E-O-152-m01	Optics and Waves												
	ECTS	8	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	25			V (4) + Ü (2) Module taught in: Ü: German or English								
	Metho	d of ass	sessment			pprox. 120 minutes) nt: German and/or Eng	lish						
11-E-A-152-m01	Atoms and Quanta												
	ECTS	8	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses			V (4) + Ü (2) Module taught in: Ü: German or English									
			sessment	written examination (approx. 120 minutes) Language of assessment: German and/or English									
11-E-F-152-m01		-			te Physics								
	ECTS	8	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	es		V (4) + Ü (2) Module taught in: Ü: German or English									
	Metho	d of ass	sessment			pprox. 120 minutes) nt: German and/or Eng	lish						
11-E-T-152-m01	Nuclea	ar and E	lementary	Partic	le Physics								
	ECTS	6	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	es			+ Ü (1) ıle taught in: Ü: Go	erman or English			_				
	Metho	d of ass	sessment			pprox. 120 minutes) nt: German and/or Eng	lish						

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 16 / 24

11-GRT-152-m01	Group Theory										
2	ECTS 6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			(2) + R (2) Nodule taught in: German or English							
	Method of as:	sessment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English 								
11-CP-152-m01	Computation	al Physics		<u> </u>							
2	ECTS 6	Duratio	n :	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses	_,	V (3) + Module	R (1) e taught in: Germar	n or English			•			
	Method of as	,essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes) If a written examination was chosen as method of assessment, this may be changed and assessment may instead take th form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is chan the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: Once a year, winter semester 								
					e a year, winter seme	5101					
11-SDC-152-m01		- r	s and Co	omputer Physics							
11-SDC-152-m01	Statistics, Da ECTS 4 Courses	ta Analysi Duration	s and Co n V (2) +	omputer Physics 1 semester	Method of grading		Modul level	graduate			

11-AP-152-m01	Astrophysics										
	ECTS	6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	!S			V (2) + R (2) Module taught in: German or English						
	Method	Method of assessment Referred to in LPO I			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes) If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. 						
	Referre				§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)						
11-TPS-152-m01	Particle Physics (Standard Model)										
	ECTS	8	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	Courses			V (4) + R (2) Module taught in: German or English						
	Method of assessment			a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English							

11-RTTB-232-m01	Theory	of Rela	tivity									
	ECTS	6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S			(3) + R (1) Iodule taught in: German or English							
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 								
	Additional Information			Approval from examination committee required								
Module Group Curr	ent Topi	ics in M	athematic	cal Phy	/sics							
11-BXMP5-152-m01	Current Topics in Mathematical Physics											
	ECTS	5	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		V (2) +	+ R (2)							
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English 								
	other p	orerequi	sites	Appro	oval from examinat	tion committee require	d.					

11-BXMP6-152-	Current	t Topics	in Mathe	matical P	hysics						
m01	ECTS	6	Duratior	1 1 5	semester	Method of grading	g numerical grade	Modul level	undergraduate		
	Courses	S		V (3) + R	(1)			•			
	Method	d of ass	essment	a) written examination (approx. 90 to 120 minutes) or							
				b) oral examination of one candidate each (approx. 30 minutes) or							
				c) oral ex	c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or						
				d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the							
				form of a	form of an oral examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest.						
				the lectur							
				Language	anguage of assessment: German and/or English						
	other p	•				tion committee requi	red.				
11-BXMP8-152-		-	in Mathe	matical P	hysics						
m01	ECTS 8 Duratio			۱ 1 S	semester	Method of grading	g numerical grade	Modul level	undergraduate		
	Courses	S		V (4) + R	(2)						
	Method	d of ass	essment	a) written examination (approx. 90 to 120 minutes) or							
				b) oral examination of one candidate each (approx. 30 minutes) or							
				c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or							
				a) projec	t report (appro. station/talk (ar	x. 8 to 10 pages) or					
				e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the							
				form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest.							
				Language of assessment: German and/or English							
	other p	rerequi	sites	Approval from examination committee required.							
Key Skills Area (20	ECTS cro	edits)									
General Key Skills											
In addition to the I	nodules l	listed b	elow, stud	lents may	also take mod	lules offered by JMU a	is part of the pool of gene	eral transferable skills (ASQ).		
General Key Skills	(subject	-specifi	c)								
10-M-Tu-	Exercis	e tutor	or proof-r	eading in	Mathematics						
Ko-152-mo1	ECTS	5	Duratior	ı 15	semester	Method of grading	g (not) successfully com	pleted Modul level	undergraduate		
	Courses	S		Т (о)		•					
	Method	d of ass	essment	Assessm	ent of tutoring	activities or correctin	g work by supervising lec	turers or exercise supe	rvisors (1 to 2 teaching units or		
					pieces of corr			•			
	Additio	nal Info	rmation	Please di	rect applicatio	n to teaching coordin	ator Mathematics, he/sh	e will select participant	ts.		
	Referre	d to in l	PO I	§ 22 Nr	. 3 f)			· · · · ·			

	Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 20 / 24
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10-M-VHB1-152-	E-Learr	ning and	Blended	Learn	ing Mathematics 1						
m01	ECTS	2	Duration	า	1 semester	Method of grading (not) successfully completed	Modul level	undergraduate			
	Course	S		Ü (2)				_			
						nostly Virtuelle Hochschule Bayern (vhb)					
	Methoo	Method of assessment			project (web-based, 15 to 20 hours) Assessment offered: Once a year, winter semester						
10-M-VHB2-152-	E-Learr	ning and	Blended		earning Mathematics 2						
m01	ECTS	2	Duration	า	1 semester	Method of grading (not) successfully completed	Modul level	undergraduate			
	Courses			Ü (2) Cours							
	Method of assessment				ct (web-based, 15 to sment offered: Once	20 hours) e a year, summer semester					
11-P-VKM-152-m01	Prepar	atory Co	ourse Mat	hemat	ics						
	ECTS	2	Duration		1 semester	Method of grading (not) successfully completed	Modul level	undergraduate			
	Courses		T (2)								
	Method of assessment			b) tall	a) exercises (successful completion of approx. 50% of approx. 6 exercise sheets) or b) talk (approx. 15 minutes) Assessment offered: Once a year, winter semester						
	Referred to in LPO I		§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)								
Subject-specific Ke	y Skills	(15 ECT	S credits)								
Subject-specific Ke	y Skills	, Compu	lsory Cou	irses (e	ECTS credits)						
10-M-GBM-152-	Basic N	lotions	and Meth	ods of	Mathematical Reas	oning					
m01	ECTS	2	Duration		1 semester	Method of grading (not) successfully completed	Modul level	undergraduate			
	Course	-	_	V (1) +							
	Methoo	d of ass	essment		project (10 to 15 pages) Language of assessment: German and/or English						
	Additic	onal Info	rmation	Addit	ional information on	module duration: block taught prior to the beginn	ing of the lecture	e period.			
	Referred to in LPO I				l Nr. 1 h) l Nr. 2 f)						
10-M-ASM-152-	Reasor	ning and	Writing i	in Matl	nematics						
m01	ECTS	2	Duration	ı	1 semester	Method of grading (not) successfully completed	Modul level	undergraduate			
	Course	S		V (1) +	- Ü (1)						
	Method	d of ass	essment		ct (10 to 20 pages) lage of assessment:	German and/or English					

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 21 / 24

11-SMP-162-m01	Semina	ar Math	ematical	Physic	ysics					
	ECTS	5	Duratio	า	1 semester	Method of grading (not) successfully completed Modul lev	el undergraduate			
	Course	S		S (2)	•	· · · ·				
					le taught in: Germa	n or English				
	Metho	d of ass	essment		60 to 120 minutes)					
		~		-		German and/or English				
	-				ives (6 ECTS credits)					
10-M-SEM2-152-	<u> </u>	1	·		Aathematics					
m01	ECTS 4 Duratio				Method of grading (not) successfully completed Modul lev	el undergraduate				
	Course			S (2)						
	Method of assessment				k (60 to 120 minutes) nguage of assessment: German and/or English					
10-M-TOP-152-m01	Introdu	uction to	Topolog	y						
	ECTS	5	Duratio	า	1 semester	Method of grading (not) successfully completed Modul lev	el undergraduate			
	Course	S		V (2) ·	+ Ü (2)					
	Metho	d of ass	essment	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M-COM-152-	Computational Mathematics									
m01	ECTS	4	Duratio	1	1 semester	Method of grading (not) successfully completed Modul lev	el undergraduate			
	Course	S		V (1) +	$V(1) + \ddot{U}(2)$					
	Metho	d of ass	essment	project in the form of programming exercises (approx. 20 to 25 hours) Language of assessment: German and/or English Assessment offered: Once a year, winter semester						
	Referre	ed to in l	POI	§ 22	I Nr. 3 f)					
10-M-PRG-152-m01	Progra	mming	course fo	r stude	nts of Mathematics	and other subjects				
	ECTS	3	Duratio	า	1 semester	Method of grading (not) successfully completed Modul lev	el undergraduate			
	Course	S		P (2)	·					
				project in the form of programming exercises (approx. 20 to 25 hours) Language of assessment: German and/or English Assessment offered: Once a year, summer semester						
	Referre	ed to in l	-PO I	§ 22	I Nr. 3 f)					

Bachelor's with 1 major Mathematical Physics (2016)	JMU Würzburg • generated 02-Aug-2025 • exam. reg. data record 82 b55 - - H 2016	page 22 / 24

10-M-GES-152-m01	Select	Selected Topics in History of Mathematics											
	ECTS	5	Duration	۱	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate				
	Cours	es		V (2) +	+ Ü (2)	· · · · ·							
	Metho	d of ass	essment	a) talk (45 to 90 minutes) or									
					m paper (10 to 15 pa								
					ject work (15 to 25 h		ich						
				Asses	sment offered: In th	German and/or Engl e semester in which	the course is offered and in the	e subsequent se	emester				
	Referr	ed to in I	PO I		§ 22 II Nr. 3 f)								
10-M-MSC-152-	Mathematical Writing												
m01	ECTS 5 Duratio			า	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate				
	Courses			V (2) -	2) + Ü (2)								
	Method of assessment				(45 to 90 minutes)								
					b) term paper (10 to 15 pages) or								
					c) project work (15 to 25 hours) Language of assessment: German and/or English								
				Assessment offered: In the semester in which the course is offered and in the subsequent semester									
	Roforr	ed to in I	POI		I Nr. 3 f)			subsequent se					
10-M-SCH-152-m01				-									
10-11-152-1101	ECTS	5	Duration		1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate				
	Cours	-	Duration		+ Ü (2)		(not) successibility completed	Modulievei	undergraduate				
				. ,									
	Metho	od of ass	essment	a) talk (approx. 45 minutes) or									
				b) term paper (10 to 15 pages) or c) project work (15 to 25 hours)									
				Language of assessment: German and/or English									
				Assessment offered: In the semester in which the course is offered and in the subsequent semester									
	Referr	ed to in l	PO I		l Nr. 1 h)								
				§ 22 Nr. 2 f)									
	_			§ 22 II Nr. 3 f)									
10-M-PRO-152-m01		minar Ma	athematic	S		· · · · · · · · · · · · · · · · · · ·		,					
	ECTS	4	Duration		1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate				
	Cours			S (2)									
	Metho	od of ass	essment		60 to 120 minutes)								
						German and/or Engl							
				Asses	sment offerea: In th	e semester in which	the course is offered						

11-M-MR-152-m01	Mathematical Methods of Physics							
	ECTS	ECTS 6 Duration		n 2 semester	Method of grading	(not) successfully completed	Modul level	undergraduate
	Courses			V (2) + Ü (1) + V (2) + Ü (1) Module taught in: German or English				
	Method of assessment			a) exercises (successful completion of approx. 50% of approx. 13 exercise sheets) or b) talk (approx. 15 minutes)				
	Referred to in LPO I			§ 53 Nr. 1 a) § 77 Nr. 1 a)				
11-CP-152-m01	Computational Physics							
	ECTS	6	Duratior	n 1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses			V (3) + R (1) Module taught in: German or English				
				 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes) If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: Once a year, winter semester 				
Thesis (10 ECTS cr		lar Thas	:- Mathan	national Dhuning				
10-M-BAP-152-M01	Bachelor Thesis Mather							un devene durate
	ECTS 10 Duration			n 1 semester Method of grading numerical grade Modul level undergraduate No courses assigned to module				
				written thesis (approx. 250 to 300 hours total)				
				Where applicable, topic-specific modules as specified by supervisor.				
	other prerequisites Additional Information			Time to complete: 10 weeks.				