

Annex SFB

Studienfachbeschreibung (subject description, SFB) for the subject Mathematical Physics as a Master's with 1 major with the degree "Master of Science" (120 ECTS credits)

Responsible: Faculty of Mathematics and Computer Science Responsible: Faculty of Physics and Astronomy Examination regulations version: 2022 Examination regulations version: 2022

Abbreviations used:	Course 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)):

02-Feb-2022 (2022-1)

16-Nov-2022 (2022-80)

12-Jun-2024 (2024-77)

14-Nov-2024 (2024-98)

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 l	evel			
	Courses		To be sp	ecified in the form X	(y) with course type 2	Kabbreviated as specified above and nu	Imber of weekly contact he	ours y		
	Method of as	ssessme	ent							
	Only after su completion of		l if applica	ible						
	Other prereq	uisites	if applica	if applicable						
	Participants on of places		ocati- if applica	ible						
	Additional in	formati	on if applica	if applicable						
	Referred to in	n LPO I	if applica	if applicable (examination regulations for teaching-degree programmes)						

10-M=MP1-161-	Analys	Analysis and Geometry of Classical Systems								
m01	ECTS	10	Duration	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	Courses			+ Ü (2) ıle taught in: Gern	nan and/or English	•	•		
	Metho	d of ass	sessment	b) ora c) ora Langi	al examination of al examination in §	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English				
10-M=MP2-161-	Algebi	ra and D	ynamics o	of Qua	ntum Systems					
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses				/ (4) + Ü (2) Aodule taught in: German and/or English					
	Metho	Method of assessment			a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English creditable for bonus					
Compulsory Elect	ives (50 l	ECTS cre	edits)							
Subfield Mathema	atics (8 E	CTS cre	dits)							
10-M=AAAN-161-	Applie	d Analy	sis							
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	Courses			V (4) + Ü (2) Module taught in: German and/or English					
	Method of assessment			b) ora c) ora Langu Asses	al examination of al examination in g uage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and in	n the subsequent se	emester		

10-M=AAL-	Topics	in Alge	bra							
G-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical	grade	Modul level	graduate	
	Course	S	_		V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmer	approx. 90 to 120 minutes, usuall ne candidate each (approx. 20 mi roups (groups of 2, 15 minutes per t: German or English the semester in which the course i	nutes) or candidate)	e subsequent so	emester	
10-M=ADG-	Differe	ntial Ge	ometry							
M-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical	grade	Modul level	graduate	
	Course	S			+ Ü (2) Ile taught in: Germ	an and/or English				
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmer	approx. 90 to 120 minutes, usually ne candidate each (approx. 20 mi roups (groups of 2, 15 minutes per t: German or English the semester in which the course i	nutes) or candidate)	e subsequent se	emester	
10-M=AFT-	Complex Analysis									
H-161-m01	ECTS 10 Duratio			n	1 semester	Method of grading numerical	grade	Modul level	graduate	
	Courses			V (4) + Ü (2) Module taught in: German and/or English						
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmer	approx. 90 to 120 minutes, usuall ne candidate each (approx. 20 mi roups (groups of 2, 15 minutes per t: German or English the semester in which the course i	nutes) or candidate)	e subsequent se	emester	
10-M=AGMS-161-	Geome	etric Stru	uctures							
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical	grade	Modul level	graduate	
	Course	S		V (4) + Ü (2) Module taught in: German and/or English						
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmer	approx. 90 to 120 minutes, usuall ne candidate each (approx. 20 mi roups (groups of 2, 15 minutes per t: German or English the semester in which the course i	nutes) or candidate)	e subsequent se	emester	

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10-M=AIST-161-	Indust	rial Stat	istics 1							
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S	_		V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of c l examination in g Jage of assessmer	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and i	in the subsequent se	emester		
10-M=ALTH-161-	Lie The	eory								
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (2) Ile taught in: Germ	an and/or English				
	Method of assessment			b) ora c) ora Langu Asses	al examination of c l examination in g Jage of assessmer	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and i	in the subsequent se	emester		
10-M=ANG-	Numeric of Large Systems of Equations									
G-161-m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses				V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of c l examination in g Jage of assessmer	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and i	in the subsequent se	emester		
10-M=AOP-	Basics	in Opti	mization							
T-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	Courses			V (4) + Ü (2) Module taught in: German and/or English					
	Method of assessment			b) ora c) ora Langu Asses	al examination of c l examination in g Jage of assessmer	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and i	in the subsequent s	emester		

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10-M=ARTH-161-	Contro	l Theory	1							
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	l examination of l examination in g lage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered an		emester		
10-M=ASM-	Stocha	stic Mo	dels of Ri	sk Ma	nagement					
R-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (2) Ile taught in: Gern	nan and/or English				
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	l examination of l examination in g lage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered an		emester		
10-M=AST-	Stochastical Processes									
P-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses				V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	l examination of l examination in g lage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered an		emester		
10-M=A-	Topolo	gy								
TOP-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	Courses		V (4) + Ü (2) Module taught in: German and/or English						
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	ll examination of ا examination in ی uage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered an		emester		

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10-M=AZ-	Time S	eries Aı	nalysis						
RA-212-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate	
	Course	S			+ Ü (2) Ile taught in: Gern	nan and/or English			
	Metho	d of ass	essment	b) ora c) ora Langu Asses	اl examination of l examination in ی age of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) ent: German or English n the semester in which the course is offered an		emester	
10-M=AZTH-161-	Numbe	r Theor	у						
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate	
	Course	S			+ Ü (2) Ile taught in: Gern	nan and/or English			
	Method of assessment			b) ora c) ora Langu Asses	l examination of l examination in g lage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) ent: German or English n the semester in which the course is offered an		emester	
10-M=AGP-	Giovanni Prodi Lecture (Master)								
Cin-152-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate	
	Courses			V (3) + Ü (1) Module taught in: English					
	Metho	d of ass	essment	b) ora c) ora Langu Asses	l examination of l examination in g lage of assessme	(approx. 60 to 90 minutes, usually chosen) or one candidate each (approx. 15 minutes) or groups (groups of 2, approx. 10 minutes per can ent: English n the semester in which the course is offered an	·	emester	
10-M=VA-	Selecte	ed Topio	s in Anal	ysis					
NA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate	
	Course	Courses		V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	b) ora c) ora Langu Asses	اl examination of l examination in ی age of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) ent: German or English the semester in which the course is offered an		emester	

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10-M=VAT-	Algebra	aic Topo	ology							
P-161-m01	ECTS	10	Duratio	ı	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S	_		V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	el examination of ا l examination in ی uage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered an		emester		
10-M=VGDS-161-	Groups	and th	eir Repres	sentati	ions					
m01	ECTS	10	Duratio	า	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (2) Ile taught in: Gern	nan and/or English				
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	l examination of ا l examination in ی uage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered an		emester		
10-M=V-	Geometrical Mechanics									
GEM-161-m01	ECTS	10	Duratio	ı	1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses				V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	el examination of ا l examination in ی uage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered an		emester		
10-M=VIST-161-	Indust	rial Stat	istics 2							
m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S		V (4) + Ü (2) Module taught in: German and/or English						
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	l examination of ا l examination in ی uage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered an		emester		

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10-M=V-	Field A	rithmeti	ics		,					
KAR-161-m01	ECTS	10	Duratio	า	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (2)		· · · · · ·			
						nan and/or English				
	Metho	d of ass	essment	b) ora c) ora Langu Asses	 a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus 					
10-M=VN-	Numer	ic of Par	tial Diffe		Equations					
PE-161-mo1	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (2) ıle taught in: Germ	nan and/or English		10		
	Metho	d of asso	essment	b) ora c) ora Langu Asses	al examination of o I examination in g Jage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and i	in the subsequent s	emester		
10-M=VOP-	Selecte	ed Topic	s in Optin	timization						
T-161-m01	ECTS 10 Duration			1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	Courses			V (4) + Ü (2) Module taught in: German and/or English					
	Method of assessment			b) ora c) ora Langu Asses	al examination of o I examination in g Jage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and i	in the subsequent s	emester		
10-M=V-	Mathe	matical	Statistics							
STA-212-m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S		V (4) + Ü (2) Module taught in: German and/or English						
	Metho	d of asso	essment	b) ora c) ora Langu Asses	al examination of o I examination in g Jage of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and i	in the subsequent s	emester		

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10-M=V-	Discret	Discrete Mathematics									
DIM-161-m01	ECTS 5 Duratio			n	1 semester	Method of grading numerical gr	ade	Modul level	graduate		
	Courses	5		V (3) - Modu		nan and/or English		•			
	Method	l of asse	essment	b) ora c) ora Langu Asses	a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M=VD-	Dynami	ical Sys	tems								
SY-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical gr	ade	Modul level	graduate		
	Courses	5		V (3) - Modu		nan and/or English					
	Method of assessment			b) ora c) ora Langu Asses	a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M=V-	Aspects of Geometry										
GEO-161-m01	ECTS 5 Duratio		n	1 semester	Method of grading numerical gr	ade	Modul level	graduate			
	Courses	5		V (3) - Modu		nan and/or English					
	Method	l of asse	essment	b) ora c) ora Langu Asses	اl examination of ا examination in ی اage of assessme	(approx. 60 to 90 minutes, usually clone candidate each (approx. 15 minu groups (groups of 2, approx. 10 minut nt: German or English the semester in which the course is	ites) or tes per candidate)		emester		
10-M=V-	Mather	natical	Continuu	m Mec	hanics						
KOM-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical gr	ade	Modul level	graduate		
	Courses	5	-	V (3) + Ü (1) Module taught in: German and/or English							
	Method	l of asse	essment	b) ora c) ora Langu Asses	اl examination of ا examination in ی اage of assessme	(approx. 60 to 90 minutes, usually cl one candidate each (approx. 15 minu groups (groups of 2, approx. 10 minut nt: German or English the semester in which the course is	ites) or tes per candidate)		emester		

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10-M=VMB-	Mather	Mathematical Imaging										
V-161-m01	ECTS 5 Duratio			ı	1 semester	Method of grading numeri	cal grade	Modul level	graduate			
	Course	S			+ Ü (1) Ile taught in: Gerr	nan and/or English						
	Methoc	l of asse	essment	b) ora c) ora Langu Asses	l examination of l examination in Jage of assessme	(approx. 60 to 90 minutes, usu one candidate each (approx. 15 groups (groups of 2, approx. 10 nt: German or English the semester in which the cour	minutes) or minutes per candidate		emester			
10-M=VMPH-161-	Selecte	d Topic	s in Math	emati	cal Physics							
m01	ECTS	10	Duratio	า	1 semester	Method of grading numeri	cal grade	Modul level	graduate			
	Course	S			+ Ü (2) Ile taught in: Gerr	nan and/or English						
	Method of assessment			b) ora c) ora Langu Asses	 a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus 							
10-M=V-	Selected Topics in Control Theory											
TRT-161-m01	ECTS	10	Duratio	ı	1 semester	Method of grading numeri	cal grade	Modul level	graduate			
	Courses				V (4) + Ü (2) Module taught in: German and/or English							
	Method of assessment			b) ora c) ora Langu Asses	l examination of l examination in g lage of assessme	(approx. 90 to 120 minutes, use one candidate each (approx. 20 groups (groups of 2, 15 minutes nt: German or English the semester in which the cour	minutes) or per candidate)	e subsequent se	emester			
10-M=VI-	Inverse	Proble	ms 1									
PR-222-m01	ECTS	5	Duratio	ı	1 semester	Method of grading numeri	cal grade	Modul level	graduate			
	Course	S		V (3) + Ü (1) Module taught in: German and/or English								
	Methoo	l of asso	essment	b) ora c) ora Langu Asses	l examination of l examination in g lage of assessme	(approx. 60 to 90 minutes, usu one candidate each (approx. 15 groups (groups of 2, approx. 10 nt: German or English the semester in which the cour	minutes) or minutes per candidate		emester			

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10-M=VMT-	Module	e Theory	,						
H-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading num	erical grade	Modul level	graduate
	Course	S		V (3) · Modu		an and/or English		,	
	Method	d of ass	essment	b) ora c) ora Langu Asses	ll examination of e l examination in g lage of assessme	(approx. 60 to 90 minutes, u one candidate each (approx. groups (groups of 2, approx. nt: German or English the semester in which the co	15 minutes) or 10 minutes per candidate		emester
10-M=V-	Non-lir	near Ana	alysis						
NAN-161-m01	ECTS	5	Duration	n	1 semester	Method of grading num	erical grade	Modul level	graduate
	Course	S		V (3) · Modu		nan and/or English			
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	ll examination of l examination in g lage of assessme	(approx. 60 to 90 minutes, u one candidate each (approx. roups (groups of 2, approx. nt: German or English the semester in which the co	15 minutes) or 10 minutes per candidate		emester
10-M=VOST-161-	Optimal Control								
m01	ECTS	5	Duratio	n	1 semester	Method of grading num	erical grade	Modul level	graduate
	Courses			V (3) + Ü (1) Module taught in: German and/or English					
	Method of assessment			b) ora c) ora Langu Asses	ll examination of l examination in g lage of assessme	(approx. 60 to 90 minutes, u one candidate each (approx. groups (groups of 2, approx. nt: German or English the semester in which the co	15 minutes) or 10 minutes per candidate	-	emester
10-M=VV-	Netwo	ked Sys	stems						
SY-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading num	erical grade	Modul level	graduate
	Course	S		V (3) + Ü (1) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	ll examination of l examination in g lage of assessme	(approx. 60 to 90 minutes, u one candidate each (approx. groups (groups of 2, approx. nt: German or English the semester in which the co	15 minutes) or 10 minutes per candidate	-	emester

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10-M=VIP2-222-	Inverse	erse Problems 2							
m01	ECTS	5	Duration	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Course	es		V (3) + Ü (1) Module taught in: Gerr	nan and/or English				
	Metho	d of ass	essment	a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M=VAFT-222-	Selecte	ed Topio	s in Com	olex Analysis					
m01	ECTS	5	Duration		Method of grading numerical grade	Modul level	graduate		
	Course	!S		V (3) + Ü (1) Module taught in: Gerr	nan and/or English				
	Metho	d of ass	essment	a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M=AAZ-	Analytic Number Theory								
T-222-m01	ECTS	10	Duration		Method of grading numerical grade	Modul level	graduate		
	Courses			V (4) + Ü (2) Module taught in: German and/or English					
	Method of assessment			 b) oral examination of c) oral examination in Language of assessment 	(approx. 90 to 120 minutes, usually chosen) of one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) ent: German or English the semester in which the course is offered ar		emester		
10-M=VK-		ex Geon	netry						
GE-161-m01	ECTS	10	Duration		Method of grading numerical grade	Modul level	graduate		
	Course	S		V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	b) oral examination of c) oral examination in Language of assessme	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered ar		emester		

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10-M=VPD-	Partial	Differe	ntial Equa	itions of Mathematical Physics						
P-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (2) Ile taught in: Germ	an and/or English	•			
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmer	approx. 90 to 120 minutes, usually chosen) or ne candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) It: German or English the semester in which the course is offered and ir	1 the subsequent s	emester		
10-M=V-	Pseudo	o Riema	nnian and	Riem	annian Geometry					
PRG-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (2) Ile taught in: Germ	an and/or English				
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmer	approx. 90 to 120 minutes, usually chosen) or ne candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) it: German or English the semester in which the course is offered and ir	the subsequent s	emester		
10-M=AF-	Functional Analysis									
AN-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	Courses			V (4) + Ü (2) Module taught in: German and/or English					
	Method of assessment			b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmer	approx. 90 to 120 minutes, usually chosen) or ne candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) it: German or English the semester in which the course is offered and ir	the subsequent s	emester		
10-M=VAD-	Applie	d Differ	ential Geo	metry						
G-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S		V (4) + Ü (2) Module taught in: German and/or English						
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmer	approx. 90 to 120 minutes, usually chosen) or ne candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) it: German or English the semester in which the course is offered and ir	the subsequent s	emester		

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10-M=VG-	Giovanni Prodi Lecture Selected Topics (Master)									
PSin-152-m01	ECTS 10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses			V (4) + Ü (2) Module taught in: English						
	Method of a	ssessment	b) ora c) ora Langu Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M=VG-	Giovanni Pro	odi Lecture	Advanc	ed Topics (Master)						
PAin-152-m01	ECTS 10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses			V (4) + Ü (2) Module taught in: English						
	Method of a	ssessment	b) ora c) ora Langu Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-	Giovanni Prodi Lecture Modern Topics (Master)									
M=VGPMin-152- mo1	ECTS 10 Duration			1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses		V (4) + Ü (2) Module taught in: English							
	Method of a	ssessment	 a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus 							
10-M=VGFT-192-	Geometric C		· ·							
m01	ECTS 10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses			V (4) + Ü (2) Module taught in: German and/or English						
	Method of a	ssessment	b) ora c) ora Langu Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						

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10-M=V-	Select									
NAM-192-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	es			+ Ü (2) Ile taught in: Germ	an and/or English				
	Metho	d of ass	sessment	b) ora c) ora Langi Asses	al examination of o l examination in gr uage of assessmen	approx. 90 to 120 minutes, usually chosen) or ne candidate each (approx. 20 minutes) or oups (groups of 2, 15 minutes per candidate) t: German or English the semester in which the course is offered an		emester		
10-M=V-	Crypto	graphy	/Coding T	heory						
KRY-192-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	!S			+ Ü (2) Ile taught in: Germ	an and/or English				
	Metho	d of ass	sessment	b) ora c) ora Langi Asses	 a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus 					
10-M=V-	Computer Algebra									
CAL-192-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	Courses			V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	sessment	b) ora c) ora Lang Asses	al examination of o l examination in gr Jage of assessmen	approx. 90 to 120 minutes, usually chosen) or ne candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) t: German or English the semester in which the course is offered an		emester		
10-M=VAZ-	Algorit	hmic N	umber The	eory						
T-192-m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	!S		V (4) + Ü (2) Module taught in: German and/or English						
	Method of assessment			b) ora c) ora Lang Asses	al examination of o l examination in gr Jage of assessmen	approx. 90 to 120 minutes, usually chosen) or ne candidate each (approx. 20 minutes) or oups (groups of 2, 15 minutes per candidate) t: German or English he semester in which the course is offered an		emester		

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10-M=VA-	Algebraic Geometry										
GE-192-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	25			⊦ Ü (2) le taught in: Germar	n and/or English					
	Metho	d of asso	essment	b) ora c) ora Langu Asses	l examination of on l examination in gro lage of assessment:	e candidate each (ap ups (groups of 2, 15 r German or English	ites, usually chosen) or prox. 20 minutes) or ninutes per candidate) the course is offered and in th	e subsequent se	emester		
10-M=SAL-	Semina	ar in Alg	ebra								
G-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	es		S (2) Modu	le taught in: Germar	n and/or English					
	Metho	d of asso	essment	Langu	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester						
10-M=SD-	Seminar in Dynamical Systems and Control										
SC-161-m01	ECTS 5 Duratio			n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			S (2) Module taught in: German and/or English							
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=S-	Seminar in Complex Analysis										
COA-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	25		S (2) Module taught in: German and/or English							
			essment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=SAD-		ar in App	olied Diffe	erentia	l Geometry						
G-161-m01	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	es		S (2) Module taught in: German and/or English							
	Metho	d of asso	essment	Langu	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester						

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10-M=S-	Seminar in Geometry and Topology									
GTO-161-m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		S (2) Modi	S (2) Module taught in: German and/or English						
	Method of a	assessment	Lang	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester						
10-M=SGP-	Giovanni P	rodi Seminaı	(Mast	er)						
Cin-152-m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		S (2) Modu	lle taught in: English	. <u>.</u>		·			
	Method of	assessment	Lang	60 to 120 minutes) uage of assessment: ssment offered: In th		the course is offered and i	in the subsequent se	emester		
10-M=SID-	Interdiscip	linary Semin	ar							
C-161-m01	ECTS 5 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		S (2) Module taught in: German and/or English							
	Method of a	assessment	Lang	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester						
10-M=SM-	Seminar Mathematics in the Sciences									
SC-161-m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		S (2) Module taught in: German and/or English							
	Method of a	assessment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=SN-	Seminar in	Numerical N	lathen	athematics and Applied Analysis						
MA-161-m01	ECTS 5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			S (2) Module taught in: German and/or English						
	Method of a	assessment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							

10-M=SOP-	Seminar in O	Seminar in Optimization									
T-161-m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses		S (2) Modu	S (2) Module taught in: German and/or English							
	Method of as	sessment	Lang	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=S-	Seminar in St	tatistics		-							
STA-161-m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses		S (2) Modu	.le taught in: Germ	an and/or English						
	Method of as	sessment	Lang		nt: German or English	the course is offered and	d in the subsequent se	emester			
10-M=SN- LA-161-m01	Seminar in No	on-linear F	Analysi	ialysis							
	ECTS 5 Duration		n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses		S (2) Module taught in: German and/or English								
	Method of as	sessment	Lang	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=SA-	Seminar App	Seminar Applied Mathematics									
MA-192-m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses		S (2) Module taught in: German and/or English								
	Method of as:	sessment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: in the semester in which the course is offered and in the subsequent semester								
10-M=EL-	Learning by T	eaching 1									
T1-192-m01	ECTS 5	Duratio	n	1 semester	Method of grading	(not) successfully comp	oleted Modul level	graduate			
	Courses		Ü (2)								
	Method of as	sessment		ssment of tutoring uage of assessmer		ng lecturers or exercise s	upervisors (1 to 2 teac	hing units)			
	Additional Inf	formation	Appli	cation and selection	on with the teaching co	oordinator for mathemati	cs				

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Subfield Physics (8 ECTS ci	redits)							
Module Group Ger	eral The	ory of P	hysics						
11-QM2-161-m01	Quantu	ım Mec	hanics II						
	ECTS	8	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Course	S			+ R (2) le taught in: Germa	n or English			
				b) ora c) ora d) pro e) pre If a wi form o the le Langu Asses	I examination of on l examination in gro ject report (approx. sentation/talk (app ritten examination v of an oral examinati cturer must inform s iage of assessment	oups (groups of 2, ap 8 to 10 pages) or rox. 30 minutes). vas chosen as metho on of one candidate students about this b c German and/or Eng	pprox. 30 minutes) or prox. 30 minutes per candidate d of assessment, this may be each or an oral examination in by four weeks prior to the origir	changed and as: groups. If the m nal examination	
11-TQO-221-m01	Theoretical Quantum Optics								
	ECTS	8	Duratio	r	1 semester	Method of grading	numerical grade	Modul level	graduate
	Course	S		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 Assessment offered: In the semester in which the course is offered and in the subsequent semester 					

11-RTT-161-m01	Theory of Relativity									
	ECTS 6 Duration			1 semester	Method of grading numerical grad	de Modul leve	el graduate			
	Course	S		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: In the semester in which the course is offered and in the subsequent semester 						
11-RMFT-161-m01				Methods in Field Theory						
	ECTS	8	Duratior		Method of grading numerical grad	de Modul leve	el graduate			
	Course	S		V (4) + R (2) Module taught in: Germ	an 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 t form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is 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 						
11-PKS-161-m01	-	-	nplex Sys	Î						
	ECTS Course	6	Duratior	1 semester V (2) + R (2)	Method of grading numerical grad	de Modul leve	el graduate			
	course	.5		Module 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 						

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11-QIC-201-m01	Advanc	ed Thec	ory of Qua	antum	Computing and Q	uantum Information			
	ECTS	6	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate	
	Course	S		V (3) - Modu	+ R (1) lle taught in: Germ	an or English			
	Methoo	l of asse	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					
11-SLQ-232-m01	Black H	loles							
	ECTS 6 Duratio			n	1 semester	Method of grading numerical grade	Modul level	graduate	
	Courses			V (3) + R (1) Module taught in: German or English					
	Methoo	l of asse	essment	b) ora c) ora d) pro e) pre If a wi form o the le Langu	Il examination of o l examination in g oject report (appro- sentation/talk (ap ritten examination of an oral examina cturer must inform uage of assessmer	(approx. 90 to 120 minutes) or one candidate each (approx. 30 minutes) or roups (groups of 2, approx. 30 minutes per candidat x. 8 to 10 pages) or oprox. 30 minutes). was chosen as method of assessment, this may be tion of one candidate each or an oral examination in a students about this by four weeks prior to the origi at: German and/or English the semester in which the course is offered and in the	changed and ase groups. If the m nal examination	ethod of assessment is changed, date at the latest.	

11-APM-242-m01	Astrophysics											
	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	:S			+ R (2) Ile taught in: Germa	an or English						
	Method	d of ass	essment	b) ora c) ora d) pro e) pre If a wi form o the le Langu	 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			Apprc	oval from examinati	ion committee require	d.					
11-ATP-242-m01	Atmospheric Physics											
	ECTS	ECTS 6 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	!S		V (2) + 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 Assessment offered: In the semester in which the course is offered and in the subsequent semester 								

11-0QS-242-m01	Open Quantum Systems											
	ECTS	6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S		V (3) - Modu	+ R (1) Ile taught in: Germa	an or English						
	Methoo	d of ass		 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 								
Module Group The	oretical	Solid Si	tate Physi	cs								
11-TFK-161-m01	Theoretical Solid State Physics											
	ECTS	8	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			V (4) + R (2) Module taught in: German or English							
	Methoo	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 								

11-TFK2-161-m01	Theore	tical Sc	lid State F	Physics 2						
	ECTS	8	Duratior	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	:S		V (4) + R (2) Module taught in: G	ierman or English					
	Metho	d of ass		 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 						
11-PTS-201-m01	Pheno	menolo	gy and The	eory of Superconduc	tivity					
	ECTS	6	Duratior	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	:S		V (3) + R (1) Module taught in: G	ierman or English		*			
	Metho	d of ass		 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 						
11-TEFK-201-m01				olid State Physics		-				
	ECTS	8	Duratior		Method of grading	numerical grade	Modul level	graduate		
	Course	!S		V (4) + R (1) Module taught in: German or English						
	Metho	d of ass		 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 						

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11-FFK-201-m01	Field T	heory ir	n Solid Sta	te Physics						
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (4) + R (2) Module taught in: Ger	man or English					
	Metho	d of ass		 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 						
11-AKTF-201-m01	Select	ed Topio		retical Solid State Phys			· · · · ·			
	ECTS	6	Duration		Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught in: Ger	man or English		N			
	Metho	d of ass		 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 						
11-CMS-161-m01		-		s Science (DFT)						
	ECTS	8	Duration		Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (4) + R (2) Module taught in: German or English						
	Metho	d of ass		 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 						

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11-KFT-161-m01	Confor	mal Fiel	d Theory								
	ECTS	6	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	25			+ R (1) Ile taught in: Germ	an or English	**				
	Metho	d of asse	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 							
11-KFT2-161-m01	Conformal Field Theory 2										
	ECTS 6 Duratio			n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses			V (3) + R (1) Module taught in: German or English							
	Metho	d of asse	essment	b) ora c) ora d) pro e) pre If a with form of the le Langu	al examination of o I examination in g oject report (appro: esentation/talk (ap ritten examination of an oral examina ecturer must inform uage of assessmer	(approx. 90 to 120 minutes) or one candidate each (approx. 30 minutes) or roups (groups of 2, approx. 30 minutes per candidat x. 8 to 10 pages) or oprox. 30 minutes). was chosen as method of assessment, this may be tion of one candidate each or an oral examination ir n students about this by four weeks prior to the origi nt: German and/or English the semester in which the course is offered and in th	changed and ase groups. If the m nal examination	ethod of assessment is changed, date at the latest.			

11-TPSM-211-m01	Particle	e Physic	s (Standa	ard Mo	del)				
	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate
	Course	S			+ R (2) Ile taught in: Germa	n or English			
	Methoo	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 					
	other p	rerequi	sites	Appro	oval from examination	on committee require	d.		
11-CRP-161-m01	Renormalization Group and Critical Phenomena								
	ECTS	ECTS 6 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses			V (3) + R (1) Module taught in: German or English					
	Methoo	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 					

11-BWW-161-m01	Boson	isation a	and Intera	ctions	in One Dimension					
	ECTS	6	Duration	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	25	_	V (3) + Modu	+ R (1) lle taught in: Germai	n 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 						
11-GGD-161-m01	Introduction to Gauge/Gravity Duality									
	ECTS	8	Duration	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses			V (4) + R (2) Module taught in: German or English						
	Metho	d of ass	essment	b) ora c) ora d) pro e) pre If a wr form c the le Langu	Il examination of on l examination in gro oject report (approx. sentation/talk (app ritten examination w of an oral examination cturer must inform s uage of assessment:		hanged and ass groups. If the m al examination o	ethod of assessment is changed, date at the latest.		

Module Group Ast										
11-AKM-161-m01	Cosmo	logy								
	ECTS	6	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	es			+ R (1) Ile taught in: Germa	an 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 Assessment offered: In the semester in which the course is offered and in the subsequent semester 						
11-AST-161-m01	Theoretical Astrophysics									
	ECTS 6 Duratio		n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	Courses			V (2) + R (2) Module 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 						

11-EPP-161-m01	Introdu	uction t	o Plasma F	Physics						
	ECTS	6	Duratior	1 I S	emester	Method of grading	numerical grade	Modul level	graduate	
	Course	!S		V (2) + R (2) Module taught in: German or English						
	Metho	d of ass		 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 						
11-APL-161-m01	High E	nergy A	strophysic	:s				· · ·		
	ECTS	6	Duratior	1 1 5	emester	Method of grading	numerical grade	Modul level	graduate	
	Course	:S		V (3) + R (Module ta		nan or English	·	·		
	Metho	l of ass		 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 instea form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment 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 					ethod of assessment is changed, date at the latest.	
11-NMA-161-m01	<u> </u>	-	l Astrophy							
	ECTS	6	Duratior		emester	Method of grading	numerical grade	Modul level	graduate	
	Course	:S		V (3) + R (1) Module taught in: German or English						
	Metho	d of ass		 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 						

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Module Group The	oretical	Element	ary Partio	cle Phy	sics					
11-QFT1-201-m01	Quantum Field Theory I									
	ECTS 8 Duratio			n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	es		V (4) - Modu	+ R (2) le taught in: Germa	an or English				
	Metho	d of asse	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 						
	other prerequisites			Approval from examination committee required.						
11-QFT2-161-m01	Quant	um Field	Theory II							
	ECTS 8 Duratio			n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	es		V (4) + R (2) Module taught in: German or English						
	Metho	d of asse	essment	b) ora c) ora d) pro e) pre If a wi form o the le Langu	l examination of o l examination in gr ject report (approx sentation/talk (ap ritten examination of an oral examinat cturer must inform lage of assessmen	approx. 90 to 120 minutes) or ne candidate each (approx. 30 minutes) or roups (groups of 2, approx. 30 minutes per candidate c. 8 to 10 pages) or prox. 30 minutes). was chosen as method of assessment, this may be tion of one candidate each or an oral examination in students about this by four weeks prior to the origi t: German and/or English the semester in which the course is offered and in th	changed and as n groups. If the m nal examination	nethod of assessment is changed, date at the latest.		

11-TEP-161-m01	Theore	tical Ele	ementary l	Particle Physi	cs					
	ECTS	8	Duratior	1 sem	ester	Method of grading	numerical grade	Modul level	graduate	
	Course	S		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 change 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						
11-ATTP-161-m01	Select	ed Tonic		retical Elemen			the course is offered			
11-ATT - 101-1101	ECTS	6	Duration			Method of grading	numerical grade	Modul level	graduate	
	Course			V (3) + R (1)		nan or English		modulleret	5.00000	
	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 inst form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment 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 					ethod of assessment is changed, date at the latest.	
11-STRG1-171-m01			· · · ·		+				and due to	
	ECTS Course	8 :S		V (4) + R (2)		Method of grading	numerical grade	Modul level	graduate	
	Metho	1 of ass		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: In the semester in which the course is offered and in the subsequent semester						

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11-STRG2-171-m01	String	Theory	2							
	ECTS	6	Duratior	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	S		V (3) + R (1) 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 instea form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment 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 						
		<u> </u>	-1	idard Model of Element						
	ECTS	6	Duratior		Method of grading numerical grade	Modul level	graduate			
	Courses			V (3) + R (1) Module taught in: Gern	nan or English					
	Method of assessment			 b) oral examination of c) oral examination in g d) project report (appro e) presentation/talk (a lf a written examination 						
Module Group Curre	-									
11-EXMP5-161-m01		<u> </u>	1							
	ECTS	5	Duratior		Method of grading numerical grade	Modul level	graduate			
	Courses Method of assessment			 V (2) + R (2) 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	Approval from examina	ation committee required.					
Master's with 1 major Mat	thematical	Physics (20	022)		JMU Würzburg • generated 19	9-Apr-2025 • exam. reg. data r	ecord 88 b55 - - H 2022 page 34 / 43			

11-EXMP6-161-m01	Current Topi	cs of Mathe	ematical Physics							
	ECTS 6	Duratio	n 1 semester	Method of grading numerical grade	Modul level	graduate				
	Courses		V (3) + R (1)	$\sqrt{(3)} + R(1)$						
	Method of as	sessment	a) written examination (approx. 90 to 120 minutes) or							
			b) oral examination of o	one candidate each (approx. 30 minutes) or						
			c) oral examination in g d) project report (appro	roups (groups of 2, approx. 30 minutes per can	didate) or					
			e) presentation/talk (a)							
			If a written examination	was chosen as method of assessment, this ma	ay be changed and as	sessment may instead take the				
			form of an oral examina	ation of one candidate each or an oral examinat	ion in groups. If the m	ethod of assessment is changed,				
				n students about this by four weeks prior to the	original examination	date at the latest.				
		<u> </u>		nt: German and/or English						
	other prerequ			tion committee required.						
11-EXMP7-161-m01			· · · ·							
	ECTS 7	Duratio		Method of grading numerical grade	Modul level	graduate				
	Courses		V (3) + R (1)							
	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.							
	- 41		Language of assessment: German and/or English							
	other prerequisites Approval from examination committee required. Current Topics of Mathematical Physics									
11-EXMP8-161-m01		1	· · · · · · · · · · · · · · · · · · ·							
	ECTS 8	Duration		Method of grading numerical grade	Modul level	graduate				
	Courses		V (4) + R (2)							
	Method of as	sessment		(approx. 90 to 120 minutes) or						
				one candidate each (approx. 30 minutes) or roups (groups of 2, approx. 30 minutes per can	didata) ar					
			d) project report (appro		luluale) of					
			e) presentation/talk (a)							
			If a written examination	was chosen as method of assessment, this ma						
				ation of one candidate each or an oral examinat						
				n students about this by four weeks prior to the nt: German and/or English	original examination	date at the latest.				
	othorner	licitoc								
	other prerequ	lisites	Approval from examina	tion committee required.						

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Subfield Research	in Group	s (10 EC	TS credit	ts)						
10-M=GAL-	Researc	ch in Gr	oups - Al	gebra						
G-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Courses	5	-		+ S (2) Ile taught in: Germa	an and/or English				
	Method	ofasse	essment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester						
10-M=G-	Researc	ch in Gr	oups - Di	screte	Mathematics					
DIM-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Courses	5			+ S (2) Ile taught in: Germa	an and/or English				
	Method	ofasse	essment	Langi	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester					
10-M=GD-	Research in Groups - Dynamical Systems and Control Theory									
SC-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Courses			V (2) + S (2) Module taught in: German and/or English						
	Method	ofasse	essment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester						
10-M=G-	Researc	ch in Gr	oups - Co	mplex Analysis						
COA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Courses	5		V (2) + S (2) Module taught in: German and/or English						
	Method	ofasse	essment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester						
10-M=GGM-	Researc	ch in Gr	oups - Ge	eometry and Topology						
T-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Courses	5		V (2) + S (2) Module taught in: German and/or English						
	Method	ofasse	essment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester						

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10-M=GM-	Resear	Research in Groups - Mathematics in Context										
CX-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	2S			V (2) + S (2) Module taught in: German and/or English							
	Metho	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=GM-	Resear	rch in Gı	oups - Ma	athem	atics in the Sciences	;						
SC-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es			+ S (2) ule taught in: Germar	n and/or English						
	Method of assessment			Lang	60 to 120 minutes) uage of assessment: ssment offered: In th		the course is offered and	in the subsequent se	emester			
10-M=G-	Resear	r <mark>ch in</mark> Gı	oups - M	easure	and Integral							
MAI-161-m01	ECTS 10 Duratio			n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (2) + S (2) Module taught in: German and/or English								
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
10-M=GN-	Research in Groups - Numerical Mathematics and Applied Analysis											
MA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (2) + S (2) Module taught in: German and/or English								
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
10-M=GROC-161-	Resear	r <mark>ch in</mark> Gı	oups - Ro	botics	botics, Optimization and Control Theory							
m01	ECTS	ECTS 10 Duratio			1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	Courses			V (2) + S (2) Module taught in: German and/or English							
	Method of assessment			Lang	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							

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10-M=GT-	Research in Groups - Time Series Analysis											
SA-161-m01	ECTS 10 Duration			n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	25			+ S (2) ule taught in: Germar	n and/or English		·	-			
	Metho	d of ass	essment	Lang	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=G-	Research in Groups - Statistics											
STA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es			+ S (2) ule taught in: Germar	n and/or English						
	Method of assessment			Lang	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=GNTH-161-	Research in Groups - Number Theory											
m01	ECTS 10 Duratio			n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	Courses			V (2) + S (2) Module taught in: German and/or English							
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
10-M=GC-	Research in Groups - Control Theory of Quantum Mechanical Systems											
QS-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (2) + S (2) Module taught in: German and/or English								
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
10-M=GD-	Resear	rch in Gı	oups - Di	fferential Geometry								
GE-161-m01	ECTS	ECTS 10 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es		V (2) + S (2) Module taught in: German and/or English								
	Metho	d of ass	essment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								

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10-M=GDF-	Resea	Research in Groups - Deformation Quantization										
Q-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	25			+ S (2) Ile taught in: Germar	n and/or English						
	Metho	d of ass	sessment	Langi	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=GN-	Research in Groups - Non-linear Analysis											
LA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es		· · ·	+ S (2) Ile taught in: Germar	n and/or English						
	Metho	d of ass	sessment	Langi	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=GO-	Resea	Research in Groups - Operator Algebras										
PA-161-m01	ECTS 10 Duratio			n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (2) + S (2) Module taught in: German and/or English								
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
10-M=GLIE-192-	Research in Groups - Lie Theory											
m01	ECTS 10 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses			V (2) + S (2) Module taught in: German and/or English								
	Metho	d of ass	sessment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: in the semester in which the course is offered and in the subsequent semester								
10-M=GAD-	Resea	rch in G	roups - Ap	plied Differential Geometry								
G-192-m01	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es		V (2) + S (2) Module taught in: German and/or English								
	Metho	d of ass	essment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: in the semester in which the course is offered and in the subsequent semester								

10-M=G-	Resear	Research in Groups - Mathematical Physics										
MAP-192-m01	ECTS 10 Duration			n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			+ S (2)	• • • • •		°.				
					lle taught in: Germar	n and/or English						
	Metho	d of ass	essment		60 to 120 minutes)							
					lage of assessment:		the course is offered and in	the subsequent se	amester			
10-M=GHST-222-	Resear	ch in G	rouns - Hi		Assessment offered: in the semester in which the course is offered and in the subsequent semester gher Structures							
m01	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course		Duratio	.		Method of grading	numencal glade	Modulievel	graduate			
	Course	:5		V (2) + S (2) Module taught in: German and/or English								
	Metho	d of ass	essment		60 to 120 minutes)							
					Language of assessment: German or English							
	Deces	Assessment offered: In the semester in which the course is offered and in the subsequent semester										
10-M=G- FAN-222-m01	Research in Groups - Fu				т	Mathead Courselines			Laura du a ta			
1710 222 1101	ECTS 10 Duratio			1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	Courses			V (2) + S (2) Module taught in: German and/or English							
	Metho	Method of assessment										
				Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
10-M=GIN-	Research in Groups - Inverse Problems											
P-222-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (2) + S (2)								
		_		Module taught in: German and/or English								
	Metho	d of ass	essment	talk (60 to 120 minutes)								
					Language of assessment: German or English							
11-AG-MDG-161-	Study	Croup N	ladarn Di	Assessment offered: In the semester in which the course is offered and in the subsequent semester								
11-AG-MDG-161- mo1	ECTS	· · · ·	Duratio	fferential Geometry n 1 semester Method of grading numerical grade Modul level graduate								
		10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	25		S (4) Module taught in: German or English								
	Metho	d of ass	essment		60 to 120 minutes)							
						German and/or Engl		the automate -				
				Assessment offered: In the semester in which the course is offered and in the subsequent semester								

11-AG-SPG-161-	Study	Study Group Symplectic and Poisson Geometry											
m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	25		S (4)									
					lle taught in: Germar	n or English							
	Metho	d of ass	essment		60 to 120 minutes)	German and/or Engl	ich						
								e subsequent se	emester				
11-AG-OAD-161-	Study	Group O	perator A		Assessment offered: In the semester in which the course is offered and in the subsequent semester Igebras and Representation Theory								
m01	ECTS	10	Duratio	<u> </u>	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	25		S (4)					10				
				Modu	lle taught in: Germar	n or English							
	Metho	d of ass	essment		60 to 120 minutes)								
					Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
11-AG-HAL-161-	Study	Group H	opf Algeb			e semester in which		e subsequent se					
m01	ECTS 10 Duratio				1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses		S (4)										
	course	courses			Module taught in: German or English								
	Metho	Method of assessment			talk (60 to 120 minutes)								
					Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
11-AG-KFT-161-m01	Study Group Conformal Field Theory												
11-AG-KF1-101-11101	ECTS				1 semester	Method of grading	numorical grado	Modul level	graduate				
	Course	_		S (4)	1 Semester	Method of glading	numencai giaue	Modulievei	giaduate				
	course	:5		Module taught in: German or English									
	Metho	d of ass	essment	talk (60 to 120 minutes)									
				Language of assessment: German and/or English									
11-AG-STM-161-	Study	Group S	tatistical	Assessment offered: In the semester in which the course is offered and in the subsequent semester Mechanics									
mo1	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	_		S (4)	1 Semester	Method of grading	numencal glade	Modulievei	graduate				
	Course	:5		S (4) Module taught in: German or English									
	Metho	d of ass	essment		60 to 120 minutes)								
					Language of assessment: German and/or English								
				Assessment offered: In the semester in which the course is offered and in the subsequent semester									

11-AG-QFT-161-m01	Study Group Quantum Field Theory										
	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	es		S (4)			•	~			
					Ile taught in: Germa	in or English					
	Metho	d of ass	essment		60 to 120 minutes)	С	1 1-				
					Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester						
11-AG-RGE-161-	Study	Group R	iemannia	n Geometry							
mo1	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course			S (4)		0 0			5		
					lle taught in: Germa	n or English					
	Metho	d of ass	essment		60 to 120 minutes)						
				Langu	uage of assessment	: German and/or Eng	lish the course is offered and in th		omostor		
11-AG-MPH-161-	Ctudy	Crown N	lathomat			ne semester in which	the course is offered and in tr	he subsequent s	emester		
mo1	Study Group Mathemat										
	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			S (4) Module taught in: German or English							
	Method of assessment			talk (60 to 120 minutes)							
				Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
				Asses				le subsequent s	emester		
Thesis (50 ECTS cre											
11-FS-MP-161-m01											
	ECTS	10	Duratio	·	1 semester	Method of grading	(not) successfully completed	d Modul level	graduate		
	Courses			S (2) Module taught in: German or English							
	Metho	d of ass	essment	talk (60 to 120 minutes) Language of assessment: German and/or English							
11-MP-MP-161-m01	Scient	ific Met	hods and	Project Management Mathematical Physics							
	ECTS	10	Duratio	n	1 semester	Method of grading	(not) successfully completed	d Modul level	graduate		
	Course	es		R (6) Module taught in: German or English							
	Method of assessment										

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11-MA-MP-161-m01	Master	ter Thesis Mathematical Physics									
	ECTS	30	Duration		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses No			Νο cou	No courses assigned to module						
	Methoo	l of asse		Master's thesis (750 to 900 hours total) Registration and assignment of topic in consultation with supervisor. Language of assessment: German and/or English							
	other prerequisites				The supervisor may make the successful completion of certain modules that are relevant for the respective topic a prerequisi- te for the assignment of the topic.						
	Additional Information			Time to complete: 6 months.							

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