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# **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: 2020 Examination regulations version: 2020

Abbreviations used:	Course types: $\mathbf{E}$ = field trip, $\mathbf{K}$ = colloquium, $\mathbf{O}$ = conversatorium, $\mathbf{P}$ = placement/lab course, $\mathbf{R}$ = project, $\mathbf{S}$ = seminar, $\mathbf{T}$ = tutorial, $\ddot{\mathbf{U}}$ = exercise, $\mathbf{V}$ = lecture
	Term: <b>SS</b> = summer semester, <b>WS</b> = winter semester
	Methods of grading: <b>NUM</b> = numerical grade, <b>B/NB</b> = (not) successfully completed
	Regulations: <b>(L)ASPO</b> = general academic and examination regulations (for teaching-degree programmes), <b>FSB</b> = subject-specific provisions, <b>SFB</b> = list of modules
	Other: <b>A</b> = thesis, <b>LV</b> = course(s), <b>PL</b> = assessment(s), <b>TN</b> = participants, <b>VL</b> = 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)):

22-Jan-2020 (2020-7)

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	D	uration	(in semesters)	Method of grading		Module level			
	Courses		To be spe	cified in the form X	(y) with course type X	K abbreviated as specified abo	ve and number of we	ekly contact hours y		
	Method of as	sessmer	nt							
	Only after su completion of		if applica	ble						
	Other prereq	uisites	if applica	if applicable						
	Participants on of places		ati- if applica	ble						
	Additional in	formatio	n if applica	if applicable						
	Referred to in	n LPO I	if applica	ble (examination re	egulations for teachin	g-degree programmes)				

10-M=MP1-161-	Analys	sis and (	Geometry	of Cla	ssical 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 Lang	al examination of al examination in g	(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-	Algebr	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) Nodule taught in: German and/or English				
	Metho	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes, usually chosen) or</li> <li>b) oral examination of one candidate each (approx. 20 minutes) or</li> <li>c) oral examination in groups (groups of 2, 15 minutes per candidate)</li> <li>Language of assessment: German or English</li> <li>creditable for bonus</li> </ul>				
<b>Compulsory Elect</b>	ives (50 E	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				
	Metho	d of ass	sessment	b) ora c) ora Lang Asse	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) ent: 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	
	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	

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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					
	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 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 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=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 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=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 A	nalysis 1		,					
RA-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 Langi 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 ar		emester		
10-M=AZTH-161-	Numbe	er Theor	у							
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical 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	l examination of l examination in g lage of assessme	(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=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 ca ent: English the semester in which the course is offered ar	ndidate)	emester		
10-M=VA-	Selecte	ed Topi	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	l examination of l examination in g lage of assessme	(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		

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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	Field Arithmetics										
KAR-161-m01	ECTS 10 Duratio			n	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 Langi	al examination of Il 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 subcosulant s	omestor				
					table for bonus		in the subsequent s	emester				
10-M=VN-	Numer	ic of Paı	rtial Diffe	rential	Equations							
PE-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	!S		V (4) Modu	+ Ü (2) Ile taught in: Gern	nan and/or English						
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of 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	n the subsequent s	emester				
10-M=VOP-	Selected Topics in Optimization											
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							
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of Il 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	n the subsequent s	emester				
10-M=V-	Statist	ical Ana	lysis									
STA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S	<u>.</u>		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 Il 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	n the subsequent s	emester				

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10-M=VZ-	Time S	Time Series Analysis 2									
RA-161-m01	ECTS 10 Duration			n	1 semester	Method of grac	ling numerical grade	Мос	dul 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	اl examination of l examination in ی age of assessme	one candidate each groups (groups of 2 nt: German or Engli	minutes, usually chosen (approx. 20 minutes) or , 15 minutes per candida sh nich the course is offered	r ate)	sequent se	emester	
10-M=V-	Discret	e Math	ematics								
DIM-161-m01	ECTS	5	Duratio	n	1 semester	Method of grac	ling numerical grade	Mod	dul level	graduate	
	Course	S		V (3) · Modu		nan and/or English					
	Methoo	d of ass	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-	Dynamical Systems										
SY-161-m01	ECTS 5 Duration			n	1 semester	Method of grac	ling numerical grade	Мос	dul level	graduate	
	Course	S		V (3) · Modu		nan and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	اl examination of l examination in ی age of assessme	one candidate each groups (groups of 2 nt: German or Engli	ninutes, usually chosen) n (approx. 15 minutes) or , approx. 10 minutes per sh nich the course is offered	, r candidate)	sequent se	emester	
10-M=V-	Aspect	s of Ge	ometry								
GEO-161-m01	ECTS	5	Duratio	n	1 semester	Method of grac	ling numerical grade	Мос	dul 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	اl examination of l examination in ی age of assessme	one candidate each groups (groups of 2 nt: German or Engli	ninutes, usually chosen) n (approx. 15 minutes) or , approx. 10 minutes per sh nich the course is offerec	, r candidate)	sequent se	emester	

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10-M=V-	Mathematical Continuum Mechanics										
KOM-161-m01	ECTS 5 Duration			n	1 semester	Method of grading numerical g	grade	Modul level	graduate		
	Course	S			+ Ü (1) Ile taught in: Germ	an and/or English					
	Method	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmen	(approx. 60 to 90 minutes, usually one candidate each (approx. 15 min roups (groups of 2, approx. 10 min nt: German or English the semester in which the course is	utes) or utes per candidate		emester		
10-M=VMB-	Mathe	matical	Imaging								
V-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical g	grade	Modul level	graduate		
	Course	S			+ Ü (1) Ile taught in: Germ	an 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=VMPH-161-	Selected Topics in Mathematical Physics										
m01	ECTS 10 Duration				1 semester	Method of grading numerical g	grade	Modul level	graduate		
	Courses				V (4) + Ü (2) Module taught in: German and/or English						
	Method	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessmen	(approx. 90 to 120 minutes, usually one candidate each (approx. 20 mir roups (groups of 2, 15 minutes per nt: German or English the semester in which the course is	nutes) or candidate)	e subsequent se	emester		
10-M=V-	Selecte	ed Topic	s in Cont	rol The	eory						
TRT-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical g	grade	Modul level	graduate		
	Course	S		V (4) + Ü (2) Module taught in: German and/or English							
	Method	d of ass	essment	b) ora c) ora Langu Asses	al examination of o l examination in g Jage of assessme	(approx. 90 to 120 minutes, usually one candidate each (approx. 20 mir roups (groups of 2, 15 minutes per nt: German or English the semester in which the course is	nutes) or candidate)	e subsequent se	emester		

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10-M=VI-	Inverse Problems										
PR-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grad	de	Modul level	graduate		
	Course	S		V (3) ·					<u>.</u>		
						nan and/or English					
	Methoo	d of asse	essment	b) ora c) ora	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)						
				Asses		nt: German or English the semester in which the course is of	ffered and in the	subsequent s	emester		
10-M=VMT-	Module	e Theory	/								
H-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grad	de	Modul level	graduate		
	Course	S		V (3) · Modu		nan and/or English					
	Methoo	d of asse	essment	b) ora c) ora Langu Asses	ll examination of و l examination in المعود of assessme	(approx. 60 to 90 minutes, usually choose candidate each (approx. 15 minute groups (groups of 2, approx. 10 minute nt: German or English the semester in which the course is of	es) or es per candidate)	subsequent s	emester		
10-M=V-	Non-linear Analysis										
NAN-161-m01	ECTS 5 Duratio			n	1 semester	Method of grading numerical grad	de	Modul level	graduate		
	Courses				V (3) + Ü (1) Module taught in: German and/or English						
	Methoo	d of asse	essment	b) ora c) ora Langu Asses	اl examination of و l examination in المود of assessme	(approx. 60 to 90 minutes, usually choose candidate each (approx. 15 minute groups (groups of 2, approx. 10 minute nt: German or English the semester in which the course is of	es) or es per candidate)	subsequent s	emester		
10-M=VOST-161-	Optima	al Contro	ol								
mo1	ECTS	5	Duratio	n	1 semester	Method of grading numerical grad	de	Modul level	graduate		
	Course	S		V (3) + Ü (1) Module taught in: German and/or English							
	Methoo	d of asse	essment	b) ora c) ora Langu Asses	ll examination of و l examination in المعود of assessme	(approx. 60 to 90 minutes, usually choose one candidate each (approx. 15 minute groups (groups of 2, approx. 10 minute nt: German or English the semester in which the course is of	es) or es per candidate)	subsequent s	emester		

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10-M=VV-	Network	Networked Systems									
SY-161-m01	ECTS 5 Duration			า	1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses	į			+ Ü (1) ıle taught in: Germ	nan and/or English					
	Method	of asso	essment	b) ora c) ora Langu Asses	al examination of o Il examination in g Jage 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 nt: German or English the semester in which the course is offered and		emester			
10-M=VK-	Complex	x Geon	netry								
GE-161-m01	ECTS	10	Duration	า	1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses	i			+ Ü (2) ıle taught in: Germ	nan and/or English					
	Method	of ass	essment	b) ora c) ora Langu Asses	al examination of o Il 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		emester			
10-M=VPD-	Partial I	Differer	ntial Equa	tions	of Mathematical P	hysics					
P-161-m01	ECTS	ECTS 10 Duration			1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses	Courses			V (4) + Ü (2) Module taught in: German and/or English						
	Method	of asso	essment	b) ora c) ora Langu Asses	al examination of o Il 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		emester			
10-M=V-	Pseudo	Riema	nnian and	Riem	annian Geometry						
PRG-161-m01	ECTS	10	Duration	า	1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses	i			V (4) + Ü (2) Module taught in: German and/or English						
	Method	of asso	essment	b) ora c) ora Langu Asses	al examination of o Il 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 an		emester			

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10-M=AF-	Functio	onal Ana	alysis						
AN-161-m01	ECTS 10 Duration			n	1 semester	Method of grading numerical grade	Modul level	graduate	
	Course	!S			+ Ü (2) ıle taught in: Germ	an and/or English			
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of al examination in g uage of assessme	(approx. 90 to 120 minutes, usually chosen) of 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	
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	es			+ Ü (2) ıle taught in: Germ	an and/or English			
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of o Il examination in g Jage of assessme	(approx. 90 to 120 minutes, usually chosen) o 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	
10-M=VG-	Giovanni Prodi Lecture Selected Topics (Master)								
PSin-152-m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate	
	Courses				V (4) + Ü (2) Module taught in: English				
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of al examination in g uage of assessme	(approx. 90 to 120 minutes, usually chosen) of one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: English the semester in which the course is offered ar		emester	
10-M=VG-	Giovan	ni Prod	i Lecture /	Advan	ced Topics (Maste	r)			
PAin-152-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate	
	Course	Courses			V (4) + Ü (2) Module taught in: English				
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of o Il examination in g Jage of assessme	(approx. 90 to 120 minutes, usually chosen) of one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate) nt: English the semester in which the course is offered ar		emester	

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10-	Giovanni Prodi Lecture Modern Topics (Master)										
M=VGPMin-152-	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
m01	Course	25			V (4) + Ü (2) Module taught in: 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: English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M=VGFT-192-	Geome	etric Cor	nplex Ana	lysis							
mo1	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	es		V (4) Modu	+ Ü (2) Ile taught in: Gerr	nan and/or English	•				
	Metho	d of ass	essment	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 Numerical and Applied Mathematics										
NAM-192-m01	ECTS 10 Duration			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	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-	Crypto	graphy	Coding T	heory							
KRY-192-m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	es	<u>.</u>	V (4) + Ü (2) Module taught in: German and/or English							
	Metho	d of ass	essment	b) ora c) ora Langu Asses	l examination of l examination in ; Jage of assessme	n examination (approx. 90 to 120 minutes, usually chosen) or xamination of one candidate each (approx. 20 minutes) or xamination in groups (groups of 2, 15 minutes per candidate) e of assessment: German or English nent offered: In the semester in which the course is offered and in the subsequent semester le for bonus					

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10-M=V-	Compu	Computer Algebra									
CAL-192-m01	ECTS 10 Duration			n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	!S			+ Ü (2) ıle taught in: Germa	an and/or English					
	Metho	d of ass	sessment	b) ora c) ora Lang Asse	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=VAZ-	Algorit	hmic N	umber Th	eory							
T-192-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	!S			+ Ü (2) ıle taught in: Germa	an and/or English					
	Metho	d of ass	sessment	<ul> <li>a) written examination (approx. 90 to 120 minutes, usually chosen) or</li> <li>b) oral examination of one candidate each (approx. 20 minutes) or</li> <li>c) oral examination in groups (groups of 2, 15 minutes per candidate)</li> <li>Language of assessment: German or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus</li> </ul>							
10-M=VA-	Algebr	Algebraic Geometry									
GE-192-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	sessment	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					emester		
10-M=SAL-	Semina	ar in Al	gebra								
G-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	!S		S (2) Modi	ıle taught in: Germa	an and/or English					
	Metho	d of ass	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=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) Modu	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						
10-M=S-	Seminar in	Complex An	alysis							
COA-161-m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		S (2) Modu	ule taught in: Germa	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=SAD-	Seminar in									
G-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	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=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) 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						
10-M=SGP-	Giovanni P	rodi Semina	r (Mast	er)						
Cin-152-m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		S (2) Modu	S (2) Module taught in: English						
	Method of	assessment	Lang	talk (60 to 120 minutes) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester						

10-M=SID-	Interdisciplinary Seminar										
C-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		S (2) Modu	S (2) Module taught in: German and/or English						
	Method	d of ass	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=SM-	Semina	ar Math	ematics i	n the S	the Sciences						
SC-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			S (2) Modu	lle taught in: Germai	n and/or English					
	Method of assessment			Langi	alk (60 to 120 minutes) anguage 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 Mathematics and Applied Analysis										
MA-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 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 Optimization										
T-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		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-	Semina	ar in Sta	tistics								
STA-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	d of ass	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=SN-	Seminar in Non-linear Analysis											
LA-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5		S (2) Modu	S (2) Module taught in: German and/or English							
	Method	ofass	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=SA-	Seminar Applied Mathematics											
MA-192-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5		S (2) Modu	lle taught in: Germa	n and/or English						
	Method of assessment			Langi	60 to 120 minutes) Jage of assessment: Ssment offered: in th		he course is offered and in the	subsequent se	emester			
10-M=EL- T1-192-m01	Learnin	g by Te	aching 1									
	ECTS 5 Duration		n	1 semester	Method of grading	(not) successfully completed	Modul level	graduate				
	Courses			Ü (2)								
	Method of assessment			Assessment of tutoring activities by supervising lecturers or exercise supervisors (1 to 2 teaching units) Language of assessment: German								
	Additio	nal Info	rmation	Application and selection with the teaching coordinator for mathematics								
Subfield Physics (	B ECTS cr	edits)										
Module Group Gen	eral Theo	ory of P	hysics									
11-QM2-161-m01	Quantum Mechanics II											
	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses	5		V (4) + R (2) Module taught in: German or English								
	Method	of ass	essment	<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>								

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11-TQO-221-m01	Theoretical Quantum Optics										
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	!S		V (4) + R (2) Module taught in: German or English							
	Metho	d of ass		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
	Theory	of Rela					· ·				
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S		V (3) + R (1) Module taught in: Gerr	nan or English						
	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
11-RMFT-161-m01		-		Methods in Field Theor							
	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		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes)</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							

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11-PKS-161-m01	Physics of Complex Systems										
	ECTS	6	Duration	1 sem	ester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (2) + R (2) Module taug	ht in: Gern	nan or English					
	Metho	d of ass	essment	<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
11-QIC-201-m01	Advan	ced The				uantum Information		· · ·			
	ECTS	6	Duration		_	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taug	ht in: Gern	nan or English					
				<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
11-SLQ-232-m01	Black H	-	Duration		4				Level and the		
	ECTS Course	6 es		V (3) + R (1)		Method of grading	numerical grade	Modul level	graduate		
	Metho	d of ass		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							

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11-APM-242-m01	Astrop	hysics	1								
	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						
	Metho	d of ass	essment	<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
	Additio	onal Info	ormation	Appro	oval from examinati	ion committee required.					
11-ATP-242-m01	Atmospheric Physics										
	ECTS	6	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	!5		V (2) + R (2) Module taught in: German or English							
	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							

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) + R (1) Module taught in: German or English						
Module Group The	Methoo	d of ass		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
Module Group The	oretical	Solid Si	tate Physi	cs							
11-TFK-161-m01	Theore	tical So	olid State	Physics							
	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							
	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							

11-TFK2-161-m01	Theore	tical So	lid State F	Physics 2								
	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		b) oral examination of c) oral examination in d) project report (appr e) presentation/talk (a If a written examination form of an oral examination the lecturer must infor Language of assessm	<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
11-PTS-201-m01	Pheno	menolo	gy and The	eory of Superconductiv	/ity							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses			V (3) + R (1) Module taught in: Ger								
	Metho	1 of ass		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>								
11-TEFK-201-m01				olid State Physics								
	ECTS	8	Duration		Method of grading	numerical grade	Modul level	graduate				
	Course	S		V (4) + R (1) Module taught in: Ger	man or English							
	Metho	d of ass		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>								

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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		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
11-AKTF-201-m01	Select	ed Topio		retical Solid State Phys			· · · · ·				
	ECTS	6	Duration		Method of grading	numerical grade	Modul level	graduate			
	Courses			V (3) + R (1) Module taught in: German or English							
	Metho	d of ass		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
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: Ger	man or English						
	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							

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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			V (3) + R (1) Module taught in: German or English						
	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
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							
	Method of assessment			b) ora c) ora d) pro e) pre If a wi form o the le Langu	al examination of on al examination in gro oject report (approx. esentation/talk (app ritten examination w of an oral examination ecturer must inform s uage of assessment:	e candidate each (ap oups (groups of 2, app 8 to 10 pages) or rox. 30 minutes). vas chosen as method on of one candidate e students about this by German and/or Engl	prox. 30 minutes) or prox. 30 minutes per candidate) d of assessment, this may be cl each or an oral examination in g y four weeks prior to the origina	hanged and ass groups. If the me al examination o			

11-TPSM-201-m01	Particle Physics (Standard Model)										
	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S			V (3) + R (1) Module taught in: German or English						
	Methoo	d of ass	essment	b) ora c) ora d) pro e) pre If a wi form o the le Langu	<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>						
	other p	rerequi	sites	Appro	oval from examination	on committee require	d.				
11-CRP-161-m01	Renorm	nalizati	on Group	and Cr	itical Phenomena						
	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							
	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							

11-BWW-161-m01	Boson	isation a	and Intera	ctions	in One Dimension						
	ECTS	6	Duration	า	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	25	_		V (3) + R (1) Module taught in: German or English						
	Metho	d of ass	essment	<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>							
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) oral d) pro e) pre If a wr form c the lee Langu	I examination of on l examination in gro ject report (approx. sentation/talk (app ritten examination w of an oral examination cturer must inform s lage of assessment:	pprox. 90 to 120 minutes) or e candidate each (approx. 30 minutes) or oups (groups of 2, approx. 30 minutes per candidate 8 to 10 pages) or rox. 30 minutes). vas chosen as method of assessment, this may be c on of one candidate each or an oral examination in students about this by four weeks prior to the origin c German and/or English the semester in which the course is offered and in the	hanged and ass groups. If the m al examination (	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			V (3) + R (1) Module taught in: German or English							
	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>								
11-AST-161-m01	Theore	Theoretical Astrophysics										
	ECTS 6 Duratio		n	1 semester	Method of grading numerical grade	Modul level	graduate					
	Courses			V (2) + R (2) Module taught in: German or English								
	Metho	d of ass	essment	<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>								

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 ( Module ta		nan 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		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>						
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 ( Module ta		nan or English				
	Metho	d of ass		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes)</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>						

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Module Group The	eoretical Elementary Particle Physics									
11-QFT1-201-m01	Quant	um Field	Theory I							
	ECTS	ECTS 8 Duratio			1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	es		V (4) - Modu	R (2) le taught in: Germa	an or English				
				<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>						
	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		
	Courses			V (4) + R (2) Module taught in: German or English						
	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>						

11-TEP-161-m01	Theore	Theoretical Elementary Particle Physics										
	ECTS	8	Duration	1	semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S		V (4) + R (2) Module taught in: German or English								
	Metho	1 of ass		<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>								
11-ATTP-161-m01	Selecte	ed Topic			ementary Partic							
		6	Duration		semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (3) + R	(3) + R (1) Aodule taught in: German or English							
				<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>								
11-STRG1-171-m01	String	-	· · · · · · · · · · · · · · · · · · ·		comostor	Mathad of grading	numerical aredo	Madul laval	araduata			
	ECTS 8 Duratio			n 1 semester Method of grading numerical grade Modul level graduate          V (4) + R (2)         Module taught in: German or English								
	Method of assessment			<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes)</li> <li>If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>								

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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								
	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) f 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, he lecturer must inform students about this by four weeks prior to the original examination date at the latest. anguage 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	dard Model of Element								
	ECTS	6	Duratior		Method of grading numerical grade	Modul level	graduate					
	Courses				V (3) + R (1) Module taught in: German or English							
			essment	<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes).</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: In the semester in which the course is offered and in the subsequent semester</li> </ul>								
Module Group Curre	-											
11-EXMP5-161-m01		<u> </u>	1									
	ECTS 5 Duratio				Method of grading numerical grade	Modul level	graduate					
	Courses Method of assessment			<ul> <li>V (2) + R (2)</li> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes)</li> <li>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.</li> <li>Language of assessment: German and/or English</li> </ul>								
	other p	orerequi	sites	Approval from examina	tion committee required.							
Master's with 1 major Mat	thematical	Physics (20	020)		JMU Würzburg • generated 19	-Apr-2025 • exam. reg. data r	ecord 88 b55 - - H 2020 page 33 / 41					

11-EXMP6-161-m01	Current T	Fopics o	of Mathe	matical Physics							
	ECTS 6	5	Duration	1 semester	Method of grading numerical grade	Modul level	graduate				
	Courses			V (3) + R (1)							
	Method o	of asses		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	on was chosen as method of assessment, this	may be changed and as	sessment may instead take the				
					nation of one candidate each or an oral exami						
					rm students about this by four weeks prior to t	the original examination	date at the latest.				
					ent: German and/or English						
	other prerequisites			Approval from examination committee required.							
11-EXMP7-161-m01	Current T	Topics o	of Mathe	matical Physics							
	ECTS 7	7	Duration	1 semester	Method of grading numerical grade	Modul level	graduate				
	Courses			V (3) + R (1)							
	Method o	of asses	ssment	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 pre	erequisit	tes	Approval from examination committee required.							
11-EXMP8-161-m01	Current T	Fopics o	of Mathe	matical Physics							
	ECTS 8	3	Duration	1 semester	Method of grading numerical grade	Modul level	graduate				
	Courses			V (4) + R (2)							
	Method o	of asses			1 (approx. 90 to 120 minutes) or						
					fone candidate each (approx. 30 minutes) or						
					groups (groups of 2, approx. 30 minutes per o	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.							
1				the lecturer must infor		the original examination	date at the latest.				
	other pre			the lecturer must infor Language of assessme	rm students about this by four weeks prior to t ent: German and/or English ation committee required.	the original examination	date at the latest.				

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Subfield Research	in Groups (10	o ECTS credi	ts)						
10-M=GAL-	Research ir	n Groups - Al	gebra	ebra					
G-161-m01	ECTS 10	Duratio	n 1	semester	Method of grading	numerical grade	Modul level	graduate	
	Courses	· · · · ·	V (2) + S Module	(2) taught in: Germar	n and/or English				
	Method of a	assessment	Languag	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	n Groups - Di	iscrete Ma	athematics					
DIM-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 a	assessment	Languag	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	n Groups - Dy	ynamical S	namical 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 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=G-	Research in Groups - Complex Analysis								
COA-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 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=GGM-	Research ir	n Groups - G	eometry a	eometry and Topology					
T-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 a	assessment	Languag	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	25			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						
10-M=GM-	Resear	rch in G	roups - Ma	athem	atics in the Sciences	5					
SC-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	25			+ S (2) µle taught in: Germa	n and/or English		l			
	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=G- MAI-161-m01	Resear	rch in G	roups - Mo	easure	asure and Integral						
	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 Duration		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 G</mark> i	roups - Ro	botics	botics, Optimization and Control Theory						
m01	ECTS	ECTS 10 Duratio			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			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-	Resear	Research in Groups - Time Series Analysis									
SA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S			+ S (2)			•			
					ule taught in: Germa	n and/or English					
	Metho	d of ass	essment		60 to 120 minutes)						
					uage of assessment ssment offered. In th		the course is offered a	nd in the subsequent se	emester		
10-M=G-	Resear	ch in G	roups - St								
STA-161-m01	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course				+ S (2)				0		
				Module taught in: German and/or English							
	Metho	d of ass	essment		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-	Posoar	ch in G					life course is offered a				
mo1	Research in Groups - NuECTS10Duratio				1 semester	Method of grading	numorical grado	Modul level	graduate		
			Duratio			method of glading	numencai giaue	Modulilevel	gladuate		
	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-	Pocoar	ch in G			rol Theory of Quantum Mechanical Systems						
QS-161-mo1	ECTS 10 Duration				1 semester		numerical grade	Modul level	graduate		
	Courses			1 semester     Method of grading     numerical grade     Modul level     graduate       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							
10-M=GD-	Decear	ch in Ci			Assessment offered: In the semester in which the course is offered and in the subsequent semester ferential Geometry						
GE-161-m01	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate		
			Duratio		+ S (2)	method of grading	numerical grade	Modul level	graduate		
	Course	25			+ 5 (2) Jle taught in: Germa	n and/or English					
	Metho	d of ass	essment		60 to 120 minutes)						
					uage of assessment				_		
				Assessment offered: In the semester in which the course is offered and in the subsequent semester							

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10-M=GDF-	Research in Groups - Deformation Quantization											
Q-161-m01	ECTS 10 Duration			n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses				+ S (2)	and / ar English		•				
					lle taught in: Germar	n 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=GN-	Research in Groups - Non-linear Analysis											
LA-161-m01	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	Courses			V(2) + S(2)							
	Matha	daface	accmont		Module taught in: German and/or English							
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English								
10-M=GO-	Pacaz	Assessment offered: In the semester in which the course is offered and in the subsequent semester  Research in Groups - Operator Algebras										
10-M=GO- PA-161-m01	ECTS	10	Duratio		1 semester	Method of grading	numorical grado	Modul level	graduate			
						Method of grading	numencal glade	Modul level	glauuale			
	Course	25		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 Duration			n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es		V (2) + S (2) Modulo taught in: Cormon and (or English								
				Module taught in: German and/or English talk (60 to 120 minutes)								
	Metho	d of ass	essment	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- G-192-m01	Resea	rch in G	roups - Ap	plied Differential Geometry								
	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)								
				Langi	lage of assessment:							
				Assessment offered: in the semester in which the course is offered and in the subsequent semester								

10-M=G-	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)							
					ule taught in: Germa	n and/or English						
	Method	d of ass	essment	talk (60 to 120 minutes)								
				Lang	Language of assessment: German or English Assessment offered: in the semester in which the course is offered and in the subsequent semester							
11-AG-MDG-161-												
mo1		10	Duratio		1 semester Method of grading numerical grade Modul level graduate							
	Course		Daració	S (4)					3.44440			
				Module taught in: German or English								
	Method	d of ass	essment		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  Study Group Symplectic and Poisson Geometry											
11-AG-SPG-161-		<u> </u>	<u> </u>		· · · · ·				1			
m01	ECTS 10 Duratio			1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	S		S (4) Module taught in: German or English								
	Method	d of ass	essment	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-OAD-161-	Study Group Operator Algebras and Representation Theory											
mo1	ECTS 10 Duration				1 semester		numerical grade	Modul level	graduate			
	Course		Duratio		1 semester     Method of grading     numerical grade     Modul level     graduate       S (4)     S (4)     S (4)     S (4)     S (4)     S (4)							
				Module taught in: German or English								
	Method	d of ass	essment		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-HAL-161- m01	Study (	Group H	opf Algeb									
	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S		S (4) Module taught in: German or English								
	Methor	d of ass	essment	talk (60 to 120 minutes)								
	meenoe	. 51 435	essment	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												
	ECTS 10 Duration		n	1 semester	Method of grading nume	erical grade	Modul level	graduate					
	Course	!S		S (4) Modu	S (4) Module taught in: German or English								
	Metho	d of ass	sessment	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-STM-161-	Study	Study Group Statistical Mechanics											
m01	ECTS	10	Duratio	n	1 semester	Method of grading nume	erical grade	Modul level	graduate				
	Courses			S (4) Modu	lle taught in: Germai	n or English							
	Metho	d of ass	sessment	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-QFT-161-m01	Study Group Quantum Field Theory												
	ECTS 10 Duratio			n	1 semester	Method of grading nume	erical grade	Modul level	graduate				
	Course	!5		S (4) Module taught in: German or English									
	Metho	d of ass	sessment	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-RGE-161-	Study Group Riemannian Geometry												
m01	ECTS 10 Duratio							Modul level	graduate				
	Course	!S		S (4) Module taught in: German or English									
	Metho	d of ass	sessment	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-MPH-161- mo1	Study	Group N	<b>Nathemat</b>	ical Physics									
	ECTS	10	Duratio	n	1 semester	Method of grading nume	erical grade	Modul level	graduate				
	Course	!5		S (4) Module taught in: German or English									
	Metho	d of ass	sessment	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									

Thesis (50 ECTS credits)											
11-FS-MP-161-m01	Professional Specialization Mathematical Physics										
	ECTS 10 Duration		n	1 semester	Method of grading	(not) successfully completed	Modul level	graduate			
	Courses			S (2) Module taught in: German or English							
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German and/or English							
11-MP-MP-161-m01	Scient	ific Meth	nods and	Projec	Project Management Mathematical Physics						
	ECTS	10	Duration	n	1 semester	Method of grading	(not) successfully completed	Modul level	graduate		
	Course	es		R (6) Module taught in: German or English							
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German and/or English							
11-MA-MP-161-m01	Maste	r Thesis	Mathema	tical P	ical Physics						
	ECTS 30 Duration		n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es		No courses assigned to module							
	Method of assessment			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.							